SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION N/A	1b. RESTRICTIVE MARKINGS N/A
2a. SECURITY CLASSIFICATION AUTHORITY N/A	3. DISTRIBUTION/AVAILABILITY OF REPORT UNCLASSIFIED/UNLIMITED
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) [redacted] 62-89	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Martin Army Community Hospital 6b. OFFICE SYMBOL (If applicable) HSXB-AR	7a. NAME OF MONITORING ORGANIZATION U.S. Army - Baylor University Graduate Program in Health Care Admin
6c. ADDRESS (City, State, and ZIP Code) Ft Benning, Georgia 31905-6100	7b. ADDRESS (City, State, and ZIP Code) AHS San Antonio, TX 78234-6100
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)
A Study to Determine the Feasibility of Establishing a Wellness Center at Martin Army Community Hospital.

12. PERSONAL AUTHOR(S)
Saunders, Ann Elizabeth

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
FINAL	FROM 7-86 TO 7-87	6 November 1987	90

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Wellness, wellness center, health promotion.

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The purpose of the study was to determine the feasibility of establishing a wellness center at Martin Army Community Hospital (MACH), Ft Benning, GA. The research effort included a review of civilian literature and military regulations, directives, and policies concerning wellness; structured telephone interviews with five Military Treatment Facilities with established wellness centers; a survey of the MACH staff; determination of services, projected workload, and required resources for the center; and an evaluation of the feasibility of MACH providing the resources. Throughout the research a Delphi panel consisting of five experts in the wellness field, was utilized. The conclusion of the researcher was that it was feasible to establish a wellness center at MACH.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	N/A
22a. NAME OF RESPONSIBLE INDIVIDUAL CPT Ann E. Saunders	22b. TELEPHONE (Include Area Code) AV 784-1611/4612
	22c. OFFICE SYMBOL

DD Form 1473, JUN 86 — Previous editions are obsolete. — SECURITY CLASSIFICATION OF THIS PAGE

A STUDY TO DETERMINE THE FEASIBILITY OF ESTABLISHING A WELLNESS CENTER AT MARTIN ARMY COMMUNITY HOSPITAL

A Graduate Research Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Captain Ann E. Saunders, MS

6 November 1987

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APPENDICES (CONT.)

ACKNOWLEDGEMENTS

It is with admiration and gratitude that I express my appreciation to my Preceptor and Deputy Commander for Administration, Colonel James G. Helgeson, for his wisdom and guidance during the preparation of this document and throughout my entire residency.

Many other senior members of the hospital staff, including Colonel John C. Richards, the former hospital Commander; Colonel William H. Parry, Deputy Commander for Clinical Services; Lieutenant Colonel John P. Fogarty, Chief, Department of Family Practice and Community Medicine; and Lieutenant Colonel J. Pitt Tomlinson, the former Chief, Preventive Medicine Service, provided a wealth of information about the hospital and the wellness field which proved invaluable in completing this project.

Special thanks is extended to Major Betty C. Jones, Nursing Methods Analyst, for her moral support and remarkable ability to point me in the right direction in my research efforts at the very moments when I was convinced that the project would never be successful.

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I. INTRODUCTION

Conditions Which Prompted the Study

In recent years, the emphasis of the Department of the Army (DA) on the total fitness of its members has increased significantly. The DA program is outlined in AR 350-15 (The Army Physical Fitness Program), dated 30 December 1985. One of the objectives of the program is to enhance combat readiness by developing and sustaining a healthy lifestyle for all soldiers. Included in this program is the recognition that elements such as weight control, avoidance of alcohol and drug abuse, smoking cessation, good nutrition, and stress management play key roles in a healthy lifestyle. The requirements of this regulation go beyond mere physical conditioning of soldiers into the realm of wellness.

The interest of DA in the overall fitness of its soldiers is the direct result of efforts by Health Services Command (HSC) and the Office of the Surgeon General (OTSG) to promote wellness issues at the highest command levels. The initial work in promoting wellness was done at the Academy of Health Sciences in December 1984 during the Medical System Program Review (MSPR). The Army Medical Department (AMEDD) concept of wellness was developed and presented to the Vice Chief of Staff of the Army at the MSPR. Included under this concept were health education and the promotion of such issues as nutrition, smoking cessation, stress management, and accident prevention. The Surgeon General suggested that each Medical Treatment Facility (MTF) establish a Wellness/Health Promotion Center to provide the services needed to support the wellness concept (Department of the Army, 1984).

Following the MSPR, HSC published HSC Regulation 40-27 (AMEDD Support of the Army Total Fitness Program), dated 5 April 1985. This regulation outlines the requirements which MTFs must fulfill in support of the Army's Total Fitness Program. Programs which MTFs must provide include weight control and dietary counselling, drug and alcohol rehabilitation, smoking cessation clinics, stress reduction clinics, and cardiovascular risk reduction clinics. These programs are to be provided to all soldiers, leadership groups, and families. Conspicuously absent from the regulation is any discussion of The Surgeon General's proposed Wellness/Health Promotion Centers.

While HSC was expanding its wellness programs in support of the total fitness of soldiers, interest in these types of programs was growing at higher levels. In December 1985, AR 350-15 was published. The Department of Defense (DOD) produced Directive 1010.10 (Health Promotion) in March 1986. The directive requires each service to develop comprehensive health promotion programs for military personnel, dependents, retirees, and civilian employees. This is the first time that civilian employees have been included as beneficiaries of these programs. The comprehensive systems must include programs on smoking cessation, physical fitness, nutrition and weight control, stress management, alcohol and drug abuse prevention and control, hypertension prevention, and lifestyle health risk appraisal. The primary responsibility for the coordination of these programs has been assigned to installation commanders. Commanders have been directed to utilize their medical resources for technical guidance and assistance in developing and managing the programs.

In response to the DOD directive, OTSG has been tasked to develop the Army's comprehensive health promotion program. According to a recent article in the HSC Mercury, OTSG will be publishing a booklet outlining a model

comprehensive health promotion program for an installation. In addition, an Army Regulation governing DA's health promotion program will be distributed during 1987 ("Army strives," 1986).

As the emphasis on wellness has increased, Martin Army Community Hospital (MACH) has expanded the size and scope of its wellness programs to meet the changing requirements of DOD, DA, and HSC. At the same time, the hospital has endeavored to make these programs accessible to as many beneficiaries as possible. During a strategic planning conference held in January 1986, promotion of the AMEDD concept of wellness was formally adopted by MACH as one of its major goals. At that time, the commander identified the establishment of a wellness center as a key objective of the hospital. The center was believed to be crucial to the hospital's ability to meet its wellness goal. In addition, it was felt that the center would allow for consolidation of MACH's wellness programs in one area, thereby increasing their accessibility to the beneficiary population (Department of the Army, 1986).

Based upon the results of the strategic planning conference and the anticipated increase in the Army's interest in health promotion, the hospital commander decided that an evaluation of the feasibility of establishing a wellness center at MACH should be performed. The center was envisioned as an expansion of the present capabilities of the Physical Examination Service (PES). Programs which were determined to be appropriate for inclusion in the center would be combined with the existing functions of the PES to produce one central location where active duty soldiers, dependents, retirees, and civilian employees could receive physical evaluations and diagnostic tests, health risk appraisals, and counselling concerning wellness issues. The center was conceived to be self-sufficient such that all equipment, supplies,

and staff necessary to provide its services were located in the center. Its functions were to be highly automated in order to take advantage of current technology and to insure rapid servicing of individuals who visit the center. It was to be housed in the facility which presently contains the PES, a building which is physically separated from the hospital. Funding for the center was initially to be sought from HSC. However, disapproval of funding from this source would not preclude establishing the center. The result of the evaluation was to be a document identifying the resources required to operate the center, discussing whether or not MACH could provide these resources from its own assets, and recommending actions to take to obtain assistance from outside the hospital in supplying those resources that it was not feasible for MACH to provide (Richards, 1987).

Definitions

The following definitions were used for the purposes of this study:

The results of two phases of the research were analyzed using content analysis. This method of analyzing research results "provides a means for generating objective and systematic data from qualitative research outcomes" (Polit and Hungler, 1983, p. 344). It is often used to analyze responses to open-ended questions on questionnaires and interviews (Polit and Hungler).

The Delphi technique is a research tool involving a panel of experts who are asked to complete a series of questionnaires. The information solicited relates to the experts' opinions, predictions, or judgement concerning a specific topic. Panel members remain anonymous so that no one member has an undue influence over any other member (Polit & Hungler, 1983).

The terms health promotion and wellness are considered to be synonymous in this study. They are defined as a conscious and deliberate approach to the achievement of an optimal level of health. They involve a "process of fostering awareness, influencing attitudes, and identifying alternatives so that individuals can make informed choices and change their behavior in order to achieve an optimum level of physical and mental health..." (Cunningham, 1982). They go beyond the detection or treatment of disease to encompass a comprehensive approach to caring for the total person. The ideas of screening for disease, conducting lifestyle health risk appraisals, and providing health education are included within these terms.

Health risk appraisal (HRA) is a technique in which an individual's health-related behaviors (such as diet, exercise, or smoking habits) and personal characteristics (such as family history of breast cancer or heart disease) are compared to mortality statistics and epidemiologic data. His or her health risks are identified before symptoms of disease occur. An estimate is made of his or her risk of dying by some specified future time. The amount of that risk which could be eliminated by making appropriate behavioral changes is also calculated (Wagner, Beery, Schoenbach, & Graham, 1982). Appraisals often involve the use of computers to estimate an individual's risk and recommend changes in behavior.

A Primary Care for the Uniformed Services (PRIMUS) Clinic is a clinic owned and operated by a civilian contractor which offers primary care services to a local military community. Its services usually include providing acute care for such illnesses as colds and the flu and such minor injuries as cuts, sprains, and simple fractures. Limited followup care for chronic conditions such as high blood pressure, diabetes, and heart problems is also provided, as

well as some preventive care such as physical examinations and Pap smears. All beneficiaries eligible to use military hospitals may use a PRIMUS Clinic. There is no charge to the patient for care received in the clinic.

The term total fitness is used by the Army to refer to a state of health which optimizes a soldier's physical and mental readiness for combat. The term also refers to the Army's program to reach this optimal state of health. Components of the Total Fitness Program are nutrition and weight control, stress management, smoking cessation, substance abuse control, and exercise (Department of the Army, 1983).

A wellness center is a centralized facility where basically healthy individuals can go to obtain screening for specific health problems, lifestyle health risk appraisals, individual counselling, and health education classes.

Statement of the Problem

The research problem was to determine the feasibility of establishing a wellness center at Martin Army Community Hospital.

Objectives

The objectives of the study were the following:

1. To conduct a review of the literature concerning wellness centers which have been established by civilian hospitals and corporations.

2. To conduct a review of regulations, directives, and policies concerning wellness which have been published by DOD, DA, and HSC

3. To survey other HSC MTFs operating wellness centers.

4. To survey key MACH staff to determine what services should be performed at the center, to review how services to be included in the center are presently performed, and to identify potential problems to consider in establishing the center.

5. To determine services and projected workload for the center.

6. To determine the resources required to support the center.

7. To evaluate the feasibility of MACH providing the required resources and, as necessary, recommend actions to take to obtain resources from outside the hospital.

Criteria

The services recommended to the Delphi panel for inclusion in the wellness center were selected by at least 50 percent of the MACH staff members participating in the staff survey.

Assumptions

1. The popularity of the concept of wellness among the civilian and military population would continue.

2. Only minor modifications would be required to the role of the MTF in support of the Army Total Fitness Program should the booklet on the model for an installation's comprehensive health promotion program or the Army Regulation on health promotion be published during the course of this study.

3. Martin Army Community Hospital would retain control of the space presently occupied by the WEC.

4. The differences between the missions of the wellness centers at other MTFs and that of MACH's center would be minimal. Therefore, information concerning the operations of the other centers would be applicable to the planning of MACH's center.

5. There would be no significant changes in the composition of MACH's beneficiary population, both in terms of overall numbers and categories of beneficiaries.

Limitations

1. The results of this study are applicable only to the situation at MACH.

2. The center must be established in the space presently occupied by the PES. Due to this space constraint, the wellness center will not offer gymnasium facilities.

3. Surveys of other MTFs were limited to those HSC activities in the Continental United States (CONUS) with wellness centers which had been officially recognized as part of the MTF's mission.

4. Preventive dentistry activities were not considered for inclusion in the wellness center.

5. The number of beneficiaries who would obtain wellness services from the PRIMUS Clinic in lieu of the MACH wellness center was unknown.

Review of the Literature

Wellness, a term that was created only in the 1960s, has roots that go back to ancient times. Some of the earliest references to health as a concept involving an individual and his or her relationship to the environment can be found in the Code of Hammerabi (circa 2000 B.C.) and the Mosiac Law (Moore and Williamson, 1984). The Greeks emphasized personal health and originated the idea of a "healthy mind in a healthy body" (Ardell, 1985). The Romans adopted and further developed the medical innovations from Greece. Galen, a Roman physician, formulated a definition of health that stressed all aspects of an individual's life. He viewed health as "a condition in which we neither suffer pain nor are hindered in the functions of daily life such as taking part in government, bathing, drinking, eating, and doing the other things that we want" (Moore and Williamson, p. 196).

In the late 19th century, the germ theory of disease and scientific rationalism rose to prominence. The germ theory laid the foundation for constructing new concepts of disease and health which still exist today under the title of "scientific medicine." This approach to health care worked effectively against the major infectious diseases of the time, resulting in vaccines for cholera, diphtheria, anthrax, and rabies. The success of these vaccines obscured the fact that death rates for all infectious diseases had fallen with the advent of improved sanitary conditions and living standards (Johnson, 1986).

A major consequence of the growth of scientific medicine was the notion that both individual and public health were not personal responsibilities, but rather were the responsibility of physicians and public agencies. Control of

disease and maintenance of health were separated from an individual's lifestyle. This separation continued in Western medical practice until the wellness movement emerged in the early 1960s (Johnson, 1986).

Wellness was first defined by a retired public health service physician, Halbert L. Dunn, in 1961 in his book High Level Wellness. Dunn defined high level wellness as "an integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable; it requires that the individual maintain a continuum of balance of purposeful direction within the environment where he is functioning" (White, 1986, p. 745). He stressed the importance of the body, mind, and spirit in creating a healthful lifestyle for an individual (Ardell, 1985).

Over the next two and a half decades, a number of events occurred and documents were produced which are considered key to the development of the concept of wellness in this country. The most important of these milestones are discussed in the following paragraphs.

Influenced by Dunn's concept of wellness, John Travis, also a physician, established a Wellness Resource Center as part of his office practice. He became the first physician to offer wellness services to the general public and other health care providers (Ardell, 1986). Concurrent with the development of his wellness center, Travis published the Wellness Workbook, which outlines the role of wellness within the continuum of the U.S. health care system (Longe, 1981).

In 1972, a longitudinal study of the impact of seven practices of daily living on life expectancy and morbidity was published by Belloc and Breslow. This study has become one of the classic documents of the wellness movement. Over 6,900 adults in California were followed for five and a half years. The

seven practices associated with increased longevity and decreased morbidity among the adults were: 1) sleeping seven to eight hours per night, 2) eating breakfast daily, 3) not eating between meals, 4) maintaining ideal weight, 5) exercising regularly, 6) using alcohol moderately or not at all, and 7) never smoking cigarettes (Taylor, Denham, and Ureda, 1982). This was the first major study which demonstrated that lifestyle and individual health were clearly linked.

The Canadian Ministry of Health and Welfare published a report in 1974, which was closely reviewed by the supporters of the wellness concept in the United States. The report presented epidemiological evidence supporting the significance of the impact of lifestyle on health. It contained a call for a series of national health promotion efforts. In addition, it presented clear evidence that advances in the health of Canadians would come about only when individuals began to modify their lifestyles and assume more responsibility for their own health (Ardell, 1985).

A report on dietary goals for the United States was released in 1977 by the Senate Select Committee on Nutrition and Human Needs. This document demonstrated the link between diet and disease based upon research studies conducted on behalf of the committee. The report recommended dramatic changes in American food consumption patterns, including decreasing the intake of salt, sugar, meat, and dairy products. It was felt that these changes in the American lifestyle would improve the overall health of the nation (Ardell, 1985).

The year 1979 is considered by many to be a landmark year for the wellness movement. Three major breakthroughs occurred during the year which served to legitimize what had been a grassroots movement up until this time. First,

Donald Ardell, probably the most well known writer on the subject of wellness, published a series of books which attained national prominence. These books provided a definition of the concept of wellness which continues to be utilized by numerous civilian and government agencies. According to Ardell, five principles govern the concept of wellness: 1) individual responsibility for health, 2) nutritional awareness, 3) physical fitness, 4) stress management, and 5) sensitivity to the physical and cultural environments influencing each individual (Longe, 1981). He stated that all five of these principles must be incorporated into a "wellness lifestyle" that promotes physical, emotional, mental, and spiritual health (Laughlin, 1982).

The second event which dramatically affected the wellness movement during 1979 was the adoption of a policy statement by the American Hospital Association (AHA) on the hospital's responsibility for health promotion. Because this policy statement was the catalyst for the establishment of health promotion programs and wellness centers by a large number of hospitals, it is quoted in full below:

> The hospital has a responsibility to work with others in the community to assess the health status of the community to identify target areas and population groups for hospital-based and cooperative health promotion programs, develop programs to help upgrade health in those target areas, ensure that persons that are apparently healthy have access to information about how to stay well and prevent disease, provide appropriate health education programs to aid those persons who choose to alter their personal health behavior or develop a more healthful lifestyle, and establish the hospital as an institution in the community that is concerned about good health in addition to one concerned about treating illness (Cunningham, 1982, p. 84).

The third major occurrence in 1979 was the release of the report Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention. This report confirmed "the growing belief among health experts that further improvements in the health of American people will be achieved - not just through increased medical care and greater health expenditures - but through a national commitment to efforts designed to prevent disease and to promote health" (Public Health Service, 1979, p. 1). The report essentially called for a new public health revolution requiring major changes in the role of government in the development of its citizens' health habits (Jaffe, 1986).

Since 1979, the evidence supporting the importance of an individual's lifestyle in determining whether or not he or she develops a disease has grown. The great epidemics of infectious disease that are now history have been replaced by contemporary epidemics of chronic diseases. The leading causes of death today are heart disease (48.4 percent of total deaths), cancer (20.6 percent), and stroke (5.5 percent) (Bader, Jones, and Yenney, 1982). Together, they account for almost 75 percent of all deaths. Risk factors such as smoking, obesity, dietary fat intake, lack of exercise, and stress are associated with these causes of death. These risk factors can be reduced by changes in lifestyle by the individuals at risk (Taylor et al., 1982). Advances in medical technology and drugs, on the other hand, have only limited use in reducing the impact of these chronic diseases (Taylor et al.).

The cost of chronic illnesses in the United States today is shocking. In preparation for a conference held in October 1983 entitled "Worksite Health Promotion and Human Resources: A Hard Look at the Data," the U.S. Department of Health and Human Services attempted to capture the costs in terms of dollars associated with several of these major chronic illnesses. Their data

indicated that cardiovascular disease annually costs our economy $80 billion, while cigarette smoking costs $48 billion. The costs associated with drug abuse approach $26 billion per year. These costs included costs associated with lost workdays, decreased productivity, increased employee turnover, and higher health insurance premiums. Not included were costs associated with human suffering and grief (Polakoff, 1985).

At the same time that the wellness movement was being sanctioned by the public and by private and government agencies, corporate America began to realize the drain that the costs of employee illnesses were having on their profits. Corporations paid more than $100 billion of the $400 billion spent on health care by the nation during 1986 (Herzlinger and Caulkins, 1986). In actuality, businesses paid twice for the cost of health care: first through insurance premiums for workers, retirees, and dependents and then through the economic burden of employee absenteeism, decreased productivity, turnover, and premature death (Forouzesh and Ratzker, 1985; Laughlin, 1982). For example, the National Center for Health Statistics found that smokers were ill more often than nonsmokers, lost more days from work, and were more likely to suffer from chronic conditions that limit activity. The center estimated that each year in excess of 150 million sick days are the result of the extra amounts of illness experienced by cigarette smokers (Bader, Jones, and Yenney, 1982).

Corporations have responded to their rising health care costs in a variety of ways. Wellness programs designed to change employees health behaviors such as reducing stress, increasing exercise, and improving their diets have been developed by many businesses. The goal of these programs is to reduce direct costs for health care paid in the form of insurance premiums and medical bills

and to decrease indirect costs associated with absenteeism, turnover, and premature deaths (Ardell, 1985). It is also anticipated by most businesses offering these programs that employee recruitment, retention, morale, and productivity will be improved (Johnson, 1986).

The majority of corporate wellness programs are conducted at the work site (White, 1986). They usually consist of activities such as health risk appraisals, medical screening for specific health problems including hypertension and diabetes, individual counselling and health education classes, physical fitness evaluations, and aerobic exercise programs (Bader, Jones, and Yenney, 1982). The programs most often address the issues of fitness, hypertension control, smoking cessation, drug and alcohol abuse, stress management, and nutrition and weight control (Chen, 1982).

Most corporations with wellness programs spend less than $125,000 on these activities. The majority spend between $1,500 and $50,000 for their programs (Forouzesh and Ratzker, 1985). In most cases, these costs are much less than those associated with employee insurance premiums and medical bills. The total cost of wellness programs among 200 large corporations examined by Herzlinger and Caulkins (1986) amounted to only .11 percent of net profits compared with 24 percent of net profits expended on employee health insurance.

Although wellness programs appear to be worthwhile investments for corporations, evaluations of the effectiveness of the programs at reducing health care costs are only now being conducted using objective criteria. The literature contains numerous reports on the success of such programs. However, most of the existing data is highly subjective. Four of the corporate programs which have received the most attention in the literature are discussed below.

The Campbell Soup Company was one of the earliest corporations to offer employee wellness programs. Their programs were introduced in 1968. The company has performed studies on the success of its programs in reducing health care costs and improving employee health. The results of the studies indicate that the cessation rate among employees enrolled in their smoking cessation clinic is over 25 percent after one year. A screening program for colon and rectal cancer has saved the company $245,000 in direct insurance payments and indirect absenteeism costs (Bader, Jones, and Yenney, 1982). Based upon data gathered from their own program, Campbell estimates that a hypothetical company of 1,000 employees would generate annual savings of $12,500 from stroke mortality, $50,000 from stroke morbidity, and $90,000 from heart attack mortality and
morbidity by establishing a hypertension screening and treatment program (Polakoff, 1985).

Control Data Corporation began offering its Staywell program to its employees in 1979. The program consists of orientations for employees and management, medical screening, health risk appraisal, and classes designed to promote healthy behavior in a variety of areas. Enrollment has ranged from 65 percent to 95 percent of employees at the corporation's different plants. The data available on the success of the Staywell program has thus far been subjective in nature. Employees participating in the program have reported that they feel better, are absent less often, use medical resources less frequently, and have higher morale. Objective data about changes in company health care costs resulting from the program has not yet been published (Herzlinger and Caulkins, 1986).

Johnson & Johnson Corporation also initiated a wellness program for its employees in 1979. Entitled Live for Life, the program offers medical screening, health risk appraisal, individual counselling and group classes, and exercise facilities. Just as with Control Data Corporation's evaluation of the success of its wellness program, Johnson & Johnson Corporation's evaluation was based primarily on subjective measures. Attitudinal measures such as satisfaction with growth opportunities, personal relationships, and working conditions; job strain; job involvement; and organizational commitment were reported as improved by employees enrolled in the program. The data has not been analyzed enough to allow demonstration of a cause and effect relationship between the Live for Life program and the reported increase in productivity (Manring, 1985).

A study of Prudential's wellness program conducted in 1984 provided more objective data on the benefits of such programs than did the previous studies discussed. Prudential's program includes physical examinations, classes on various wellness subjects, and periodic medical screenings. The study was a prospective, longitudinal evaluation of the effects of the wellness program on major medical and disability costs for the corporation. The results demonstrated that employees enrolled in the program had lower major medical and disability costs than did other employees. Major medical costs were 45.7 percent lower and disability costs were 31.7 percent lower over a four year period among enrolled employees than among those not participating in the program. At the time of the study, Prudential estimated that it saved $1.93 for every dollar invested in its wellness program (Elias and Murphy, 1986). The authors of the study acknowledged that selection bias may have occurred in that the study participants may not have been representative of the overall

population. Some employees who took part in the program may have had healthier lifestyles prior to enrollment. Their major medical and disability costs might have been lower regardless of their participation in a formal wellness program. However, the authors were of the opinion that this bias was minimal and was far outweighed by the main strength of the study, the fact that it was a prospective, longitudinal evaluation of two measured cost outcomes (Elias and Murphy).

Corporations have not been the only organizations who have invested in wellness programs. Hospitals have established programs, both for their own employees and for export to their local business communities. The most common wellness programs offered by hospitals are nutrition education, stress management, hypertension control, physical fitness, smoking cessation, and aerobic dance (Ross et al., 1985). Health risk appraisals and medical screening are also part of most of the programs (Longe, 1981).

The number of hospitals with wellness programs began to grow rapidly soon after the AHA's policy statement on health promotion was released. Through their programs, these hospitals are assuming responsibility for the health of the communities they serve. All hospitals with wellness programs stand to gain by offering these services. Benefits include improved competitive stance among local hospitals, increased referrals of patients, increased revenues, diversification of services, improved relations with the local business community, increased utilization of other hospital services, and enhanced image of the hospital in the eyes of its employees and the public (Longe, 1985).

Two examples of hospitals which have been successful in achieving their goals through offering wellness programs to their employees and local

businesses are Swedish Medical Center of Englewood, Colorado, and Skokie Valley Community Hospital, Skokie, Illinois. The Swedish Medical Center was the first hospital to establish a wellness center. It was created in 1978 to offer programs to hospital employees and community businesses (Longe, 1981). Soon after it was founded, the center was providing educational materials and seminars to other hospitals, physician groups, schools, and businesses in the Denver area. The wellness center was so successful that the hospital now has a large number of contracts with institutions across the country to provide wellness information and education (Ardell, 1985).

Skokie Valley Community Hospital's Good Health Program was organized for hospital employees in 1979. It offers a full range of wellness education programs, as well as health risk appraisal and medical screening services. The hospital expanded its services rapidly. It presently directs wellness programs for employees of Northwestern University, All-State Insurance Company, and other businesses in the Skokie area (Cunningham, 1982). As evidence continues to mount concerning the impact that lifestyle has upon health, it becomes more and more evident that one solution to escalating health care costs is to emphasize the concept of wellness in order to reduce the deleterious effects which chronic diseases have upon our population. Hospitals and corporations have already invested a great deal of money in wellness programs. Existing studies point toward numerous benefits from these investments. However, the studies differ greatly in their design methodologies and measurement techniques. This makes it difficult to combine their results into an overall picture of the benefits of wellness programs. Further research is needed to better understand the long term effect of these programs.

Research Methodology

The research surrounding the establishment of the MACH wellness center was performed in six phases: 1) review of the literature and regulations, directives, and policies; 2) telephone interviews with other MTFs; 3) survey of MACH staff; 4) determination of services and projected workload; 5) determination of required resources; and 6) evaluation of the feasibility of MACH providing the required resources.

Phase 1 - Review of the Literature and Regulations, Directives, and Policies

The literature concerning wellness was reviewed to determine trends in the wellness field, services included in civilian wellness centers, the procedures used by civilian hospitals and corporations to establish these centers, and the effectiveness of the centers in meeting hospital and corporate goals. Regulations, directives, and policies established on wellness by DOD, DA, and HSC were reviewed. This information served as a framework within which the other objectives of the study were accomplished.

Phase 2 - Telephone Interviews With Other MTFs

The initial step in this phase of the research was to contact HSC to determine which MTFs had wellness centers officially recognized as part of their mission. A telephone interview was conducted with the HSC Community Health Nurse Staff Officer, who is responsible for monitoring all of HSC's wellness programs. She identified five MTFs with official wellness centers:

1) Fort Bragg, North Carolina; 2) Fort Carson, Colorado; 3) Fort Leavenworth, Kansas; 4) William Beaumont Army Medical Center (WBAMC), El Paso, Texas; and 5) Madigan Army Medical Center (MAMC), Tacoma, Washington (Ashjian, 1987).

Structured telephone interviews were conducted with the key individuals responsible for operating the wellness centers at these MTFs. The purpose of the interviews was to obtain information on what services these centers offer, their average workload, problems encountered in establishing and operating them, and ways in which they could be improved.

The interviews were conducted in three stages. The first stage consisted of an initial telephonic conversation with each key individual to introduce the research project and solicit his or her assistance in completing a survey. The second stage involved mailing the survey cover letter and questionnaire to each key individual. The questionnaire was pretested using the Delphi technique. A panel of five experts was selected based upon their expertise in one or more of the clinical functions under consideration for inclusion in the wellness center, their familiarity with both the civilian and military concepts of wellness, and their familiarity with the MACH beneficiary population. The Delphi panel consisted of one Army Nurse Corps Lieutenant Colonel, one Medical Corps Lieutenant Colonel, one Medical Service Corps Major, one Army Medical Specialist Corps First Lieutenant, and one Master Sergeant with extensive nursing experience. The panel reviewed the questionnaire and recommended several changes. These changes were incorporated into the questionnaire prior to its mailing. Copies of the final survey cover letter and questionnaire are at Appendix A. The reason for mailing the survey questionnaire to each key individual was to allow him or

her time to review the questions and collect the requested data. The third stage consisted of the structured telephone interview during which each key individual provided responses to the survey questionnaire. This three stage process proved successful in overcoming a potential problem with the length and complexity of the questionnaire being unsuitable for use in a telephone interview.

The results of these interviews were evaluated and, where possible, used to determine services, project workload, and determine required resources during Phases 4 and 5 of the research.

Phase 3 - Survey of MACH Staff

Selected chiefs of MACH's departments and separate services were surveyed using the Wellness Center Survey at Appendix B. The questionnaire was designed to provide information on the types of services the staff felt should be offered by the wellness center, the wellness services presently provided by MACH, the resources used to support these services, and the impact that the center would have upon their department or service.

The questionnaire was pretested by the Delphi panel. Two pretests were necessary before the panel reached consensus. Modifications were made after each pretest based upon the panel's recommendations.

A total of 36 questionnaires was administered. The questionnaires were delivered in person to each chief by the researcher. The areas surveyed were selected by the researcher, in consultation with the Delphi panel members, based upon the potential impact that a wellness center would have upon their operations. A listing of the areas surveyed can be found in the distribution

of the Wellness Center Survey cover letter in Appendix B. An envelope was attached to each survey to allow the chiefs to return the survey to the researcher through the hospital distribution system.

All 36 questionnaires were returned to the researcher. The responses from nine of the areas surveyed were incomplete or unclear. Personal interviews were conducted by the researcher with the chiefs of these areas in order to obtain additional information and clarify responses.

The results of the survey were evaluated and, where possible, used to determine services, project workload, and determine required resources during Phases 4 and 5 of the research.

Phase 4 - Determination of Services and Projected Workload

The information concerning services offered by other MTFs obtained during the structured telephone interviews was combined with the services recommended by the MACH staff and presented to the Delphi panel for review. The panel was asked to apply their expert judgement and decide which services should be offered by MACH's wellness center.

Once the Delphi panel had selected the services to be offered, attempts were made to project the workload for the center using information from four sources: 1) the review of the literature and regulations performed during Phase 1 of the research, 2) a detailed examination of the demographics of the MACH beneficiary population, 3) the structured telephone interviews with other MTFs conducted during Phase 2, and 4) the staff survey from Phase 3. None of these sources produced the information needed to accurately project workload, as will be addressed in the discussion section of this paper. This

problem was presented to the Delphi panel. The panel reached a consensus on a workload figure based upon the average monthly workload of the PES plus additional workload due to the added wellness services. This workload figure was used during Phases 5 and 6 of the research.

Phase 5 - Determination of Required Resources

After the services to be offered and projected workload of the center were determined, the required resources were identified based upon information obtained from the structured telephone interviews with other MTFs and the survey of the MACH staff. These resources and their costs were presented to the Delphi panel for review. The panel made a unanimous decision to eliminate selected services from the center to reduce costs. The revised list of services to be offered and the resources associated with these services were used during the evaluation of the feasibility of MACH providing the center's resources in Phase 6 of the research.

Phase 6 - Evaluation of the Feasibility of MACH Providing the Resources

The researcher performed this phase of the research in two stages. First, a review of the current PES was conducted. Services that are provided and the resources needed to support these services were examined. Second, the required resources for the wellness center identified during Phase 5 were compared to the resources presently used in PES. Additional required resources beyond those already available in the PES were determined. The feasibility of MACH providing the additional resources out of its current

assets was evaluated. Sources were specified for those resources that could not be provided by MACH. Actions that should be taken to obtain the resources were developed.

II. DISCUSSION

Telephone Interviews With Other MTFs

Most of the questions asked during the structured telephone interviews with the five MTFs surveyed were designed as open-ended questions in order to obtain as much information as possible about each MTF's wellness center. Since the majority of questions were open-ended, the responses provided to them did not lend themselves to quantitative analysis. Therefore, the results of the structured telephone interviews were analyzed using content analysis.

In general, the researcher found that each of the wellness centers at these MTFs differed significantly from the other centers. Most of the centers had been in operation for only a short period of time and had performed no analysis of their workload or costs. Incomplete information was received from each of the centers concerning at least one of the questions. This limited the usefulness of the results during other phases of the research.

Question 1 of the questionnaire concerned the length of time that the center had been in operation. Responses to this question ranged from several weeks to several years. The center that had been in operation the longest was at Fort Bragg. It had been in operation since 1984. The centers at WBAMC and MAMC had been open since mid-1986. The center at Fort Leavenworth had been functioning since March 1987, while Fort Carson's center had opened less than

two weeks prior to the interview. This gradual increase in the number of centers open throughout HSC appeared to parallel the growth of the Army's interest in wellness and the fitness of its soldiers.

The second question addressed the services offered by the centers. A table summarizing the results of this question is at Appendix C. The services offered most frequently by the wellness centers included physical examinations, HRAs, blood pressure checks, height and weight checks, blood cholesterol levels, triglyceride levels, glucose levels, nutrition and weight control counselling, stress management clinics, exercise and physical fitness counselling, and videotapes on wellness subjects. The other services listed in this question were offered by a smaller number of the centers or were not offered at all. Most centers referred patients seeking these other services to specialty clinics for care.

The responses to Question 3, which asked to whom the wellness center's services were offered, were identical for all five MTFs. All centers extend their services to active duty soldiers, retirees, dependents of active duty and retirees, and civilian employees. By offering their services to all these categories of beneficiaries, the centers are fully complying with DOD Directive 1010.10 (Health Promotion).

During the discussions surrounding questions two and three, the model upon which each wellness center was based was revealed. Each center is designed around a different model.

Fort Bragg's wellness center is considered a reception center model since it is located in the installation's "One Stop Inprocessing Center." All newly assigned active duty personnel and their dependents are offered the opportunity to process through the center. Retirees, their dependents, and

civilian employees who seek the services of the center are seen on a space available basis. The center provides its clients with HRAs, blood testing, educational classes on wellness subjects, and referrals for specialized testing or medical care, as required.

The wellness center at WBAMC is focused around the PES. An HRA is performed on each individual who comes to the PES. Results of the appraisal and the physical examination are evaluated and the individual is referred elsewhere for more definitive medical care or educational classes, as appropriate. Details concerning the operation of this center were of particular interest to the researcher since it appeared to more closely resemble a model for the potential center for MACH than did the other centers surveyed.

Madigan Army Medical Center's "Total Fitness Center" is operated by the hospital's Community Health Nurse. It is designed to be more mobile than the other centers in that a team of health care personnel travels to units, post housing areas, and the Post Exchange and Commissary to conduct wellness assessments. Health risk appraisals are performed, blood is drawn, and individuals are counselled concerning their health risks. A second visit is made to units and housing areas to teach classes on nutrition, exercise, stress management, and smoking cessation. Although identical services are offered in the center itself, the activities of the team make up the bulk of MAMC's wellness workload.

The center at Fort Leavenworth is based in a gymnasium operated by the installation. This center's emphasis is on exercise and physical fitness. A wellness assessment, consisting of an HRA and blood testing, is performed on each individual prior to his or her embarking on a physical fitness training

program. The individual is counselled concerning his or her health risks and, if necessary, referred to the hospital for more definitive medical care or educational classes.

The services offered by the Fort Carson wellness center are provided entirely through contracts with civilian sources. The center operates out of two locations, a central inprocessing center and the PES. At both locations, HRAs, height and weight checks, blood pressure checks, and blood testing are performed. Individuals in whom problems are identified are referred to the hospital for further care or classes.

The purpose of the fourth and fifth survey questions was to determine the similarity between the beneficiary population of MACH's wellness center and the beneficiary populations of the other MTFs' centers. The responses from the MTFs varied. These responses are summarized in the table at Appendix D. The composition of MACH's beneficiary population is also included in the table.

A review of the table revealed that two of the MTFs, WBAMC and Fort Leavenworth, provided incomplete information concerning their beneficiary populations. The missing information made it impossible to compare the populations served by these two wellness centers to the potential users of MACH's center. Since WBAMC's wellness center was of special interest to the researcher, this inability to compare populations proved especially disruptive to the research effort. It should be noted that the researcher made three separate attempts to obtain the information on WBAMC's beneficiary population without success.

None of the beneficiary populations of the three MTFs which provided complete information were similar to MACH's population in all categories of

beneficiaries. Fort Bragg's population was almost twice as large as MACH's in all categories of beneficiaries except civilian employees. Madigan Army Medical Center's population resembled MACH's population in the active duty and dependents of retirees and deceased service members categories. However, in the dependents of active duty category, MAMC's population was almost twice as large as MACH's population and in the retiree category, it was almost three times as large as MACH's population. On the other hand, MAMC had slightly more than half the number of civilian employees as MACH in its population. Fort Carson's beneficiary population resembled MACH's in only the dependents of active duty category. In the category of active duty, the Fort Carson population was approximately two-thirds the size of the MACH population. In the civilian employees category, it was less than half the size of the MACH population. Fort Carson's population was over twice the size of MACH's in the dependents of retirees and deceased service members category and almost three times larger than MACH's population in the retiree category.

Question 6, concerning the average monthly workload of the other MTFs' wellness centers, was considered a critical question by the researcher. The information obtained in response to this question was to have been used in Phase 4 of the research to project workload for MACH's center. Unfortunately, the responses to this question were incomplete. One MTF, MAMC, stated that the center's workload was consolidated with that of the entire Preventive Medicine Service and could not be broken out from that overall figure. Three centers, WBAMC, Fort Bragg, and Fort Carson, gave a total monthly workload figure and indicated that it could not be broken down by category of beneficiary or service. The figure provided by WBAMC was 1,200 patients per month, the figure from Fort Bragg was 2,000 patients per month, and the figure

from Fort Carson was 480 patients per month. The remaining center, Fort Leavenworth, provided workload data by category of beneficiary. The average monthly workload for this center was 47 patients, 25 of which were active duty soldiers. Ten patients were dependents of active duty and ten were retirees. The other two patients were dependents of retirees. No civilian employees have been seen in this center.

The responses to Question 7, which concerned the average monthly cost to operate the centers, ranged from no response to a listing of the annual costs associated with staffing, supplies, and equipment. None of the MTFs were able to provide an average monthly cost figure for their center. One MTF, MAMC, stated that the costs of operating the center were not maintained separately from the costs of running the Preventive Medicine Service. A second MTF, WBAMC, indicated that the center's costs were included in the costs of the Community Health Nursing Service's operations. Specific cost figures for these two centers were not provided.

Fort Leavenworth and Fort Bragg provided incomplete information on their center's costs. The only cost figure supplied by Fort Leavenworth was $35,000 for the salaries of a receptionist and nurse working in the center. This was an annual cost figure and did not include the costs for the salaries of the center's other two employees. Fort Bragg simply provided an annual cost figure of $118,000.

The information provided by Fort Carson was only slightly more detailed than that provided by the other MTFs. An annual cost figure of $170,000 associated with the contract for this center's services was furnished. This figure was divided between $100,000 for the salaries of five employees, $50,000 for supplies and maintenance of equipment, and $20,000 for the one

time purchase of equipment such as scales, sphygmomanometers, computer hardware and software, and a blood cholesterol analyzer.

Question 8 was divided into two parts. Part a addressed problems encountered in establishing the wellness center. Part b focused on problems associated with operating the center.

The responses to Part a were grouped into five categories: 1) no problems, 2) staffing problems, 3) funding problems, 4) space problems, and 5) equipment problems. Two MTFs, MAMC and WBAMC, indicated that there had been no problems encountered in establishing their centers. Two other MTFs, Fort Bragg and Fort Carson, stated that they had initially had problems in obtaining qualified personnel to staff their centers. Identifying sources of funds and obtaining sufficient funds to cover the expenses associated with creating the center were named as problems by Fort Leavenworth. Locating space, obtaining permission to use that space, and completing engineering work to prepare the space for occupancy were problems confronted by Fort Bragg, Fort Leavenworth, and Fort Carson. Fort Bragg and Fort Carson also stated that they had to overcome problems in securing computer equipment and a blood cholesterol analyzer for their centers.

The responses to Part b were placed into two categories: 1) funding problems and 2) computer support. All five MTFs identified funding as a problem in operating the center. In each case, the problem was with acquiring additional funding to expand the population serviced by the center. All of the centers initially offered their services only to active duty soldiers. In order to meet DOD guidelines, they began to offer their services to all categories of beneficiaries and civilian employees. This expansion increased their funding requirements. They encountered difficulties in identifying

sources of funds and securing enough funds to cover their growing costs. Three centers, Fort Bragg, MAMC, and WBAMC, indicated that they continue to have problems obtaining computer support to process HRA results and analyze workload and cost data.

Improvements that should be made in the centers were covered in Question 9. The responses to this question were directly related to the problems identified in Question 8. The three MTFs which specified problems in Part a of Question 8 indicated that better planning prior to opening their centers would have alleviated all these problems. Increased funding for the centers was the sole improvement recommended to resolve the problems identified in Part b of Question 8. All of the MTFs stated that both their installations and HSC should provide funds for the center to supplement the monies paid by the hospital. These additional funds would permit the centers to properly support all categories of beneficiaries in accordance with DOD requirements.

The final survey question requested additional comments. Four MTFs, Fort Bragg, MAMC, Fort Leavenworth, and Fort Carson, made the same comment concerning equipping their wellness centers. The comment was that a blood cholesterol analyzer was critical to the operation of their centers. This instrument permits immediate analysis of the cholesterol level in a blood sample. Individuals who come to these centers receive their blood cholesterol readings without having to wait an extended period of time or return for a second visit. The cholesterol reading is used in counselling individuals concerning their health risks and in identifying patients who should be referred for further medical evaluation. The MTFs felt that the instant feedback provided by this instrument directly affected the success of their centers.

During the course of the structured telephone interviews, the researcher became concerned that the wide variety of responses to the survey questions might indicate that the missions of the other MTFs' wellness centers differed significantly from the proposed mission of the MACH wellness center. If this were the case, the validity of assumption four would be questionable. In order to confirm the validity of this assumption, which states that the missions of the other MTFs' centers and MACH's center are similar, the researcher deviated from the structured questionnaire to ask one additional question about the mission of each wellness center. The researcher verified that the missions of all the centers were identical to the proposed mission of MACH's center. That mission, taken from DOD Directive 1010.10 (Health Promotion), is to provide wellness services for the installation which increase the combat readiness of soldiers and encourage a healthy lifestyle for all categories of beneficiaries and DOD civilian employees (Department of Defense, 1986). The researcher concluded that assumption four is valid despite the variances in responses to the questions.

There were several limitations on the usefulness of the information obtained from the MTFs in planning for MACH's wellness center. First, although the missions of the centers were identical, how these missions were accomplished varied significantly among the centers. The researcher discovered that each center was of a different design. The staffing, supplies, equipment, space, and funding required to support each center were dependent upon the center's design. The differences between centers meant that only portions of any one center's information were applicable to MACH's center. Second, the differences between the beneficiary populations served by the centers interfered with the applicability of the other centers' workload

figures to MACH's center. Some researchers have stated that similarities between potential populations of two health care facilities can result in a similar demand for the sevices of both facilities (Bader, Jones, and Yenney, 1982). It was hoped that at least one of the other MTFs' beneficiary populations would resemble MACH's population so that its wellness center workload could be applied to the planning for MACH's center. This was not what resulted from the interviews. Third, it was evident from the incomplete workload and cost information available from the other centers that they were not capturing this sort of information in an effective manner. This led the researcher to believe that any information provided on workload and costs was only an estimate.

The researcher had anticipated that the information obtained from the structured telephone interviews would prove applicable to MACH's wellness center. These limitations forced the researcher to conclude that this information should be applied with caution and in only a very general manner during the other phases of the research.

Survey of MACH Staff

The results of the Wellness Center Survey given to selected members of the MACH staff were analyzed using content analysis in a manner similar to that used to evaluate the results of the structured telephone interviews with other MTFs. This method was chosen again because the majority of survey questions were open-ended and the responses could not be quantitatively analyzed. During this analysis of the survey responses, the researcher discovered that the survey instrument had captured a great deal of information that was not

pertinent to the research. Only that information relevant to the research has been included in this discussion of the survey results.

All 36 questionnaires provided to the staff members were returned to the researcher. Therefore, a 100 percent response rate was attained for this survey. This unusually high response rate was achieved because of the emphasis placed upon the survey by the MACH Commander. The high response rate initially led the researcher to believe that the reliability and validity of the questionnaire were high.

Question 1 of the survey solicited staff members opinions on what services MACH's wellness center should offer. The responses to this question are summarized in Appendix E. The responses are listed in order from the services recommended by the largest number of staff members to the services recommended by the fewest staff members. The criteria that a service had to be selected by at least 50 percent of the MACH staff members surveyed in order to be recommended to the Delphi panel for inclusion in the wellness center was applied to the responses to this question. The first 20 services listed, from blood pressure checks through immunizations, met this criteria. These were the services presented to the Delphi panel for consideration for inclusion in the wellness center during Phase 4 of the research.

The responses to Question 2, which addressed services presently offered by MACH, indicated that many of the services in the questionnaire were provided by more than one of MACH's departments or services. The number of departments and services offering each type of service is outlined in Appendix F. The services are ranked from those offered by the largest number of departments and services to those offered by the smallest number of departments and services. A comparison of Appendices E and F demonstrated that 14 of the 20

services recommended to the Delphi panel for inclusion in the wellness center are presently performed at MACH. This similarity between the services recommended and existing services indicated that many of the resources needed to establish a wellness center were already available at MACH.

The answers to Question 2 were also evaluated to determine which departments and services presently offer one or more of the wellness services listed in the questionnaire. Twenty-one different departments and services offer these services. The hospital's four Family Practice Clinics, Women's Health Clinic, Cardiology Service, PES, and Internal Medicine Clinic offer the largest number of services. Each of these areas provides at least five different types of wellness services.

The purpose of Question 3 was to obtain an average monthly workload figure for each type of service. Unfortunately, most of the departments and services indicated that they did not maintain workload figures on the specific wellness services listed in the detail requested by the researcher. Many key departments and services such as the Family Practice Clinics and Internal Medicine Clinic stated that they were unable to provide any workload figures broken down by type of service. Those few departments and services that did provide workload figures indicated that they were only rough estimates. The fact that complete, accurate workload data on each type of wellness service presently offered by MACH could not be provided had a negative impact on efforts to project workload for the wellness center in Phase 4 of the research.

Questions 4, 5, and 6 were designed to obtain information about the staffing, supply, and equipment requirements associated with the wellness services presently offered by MACH. Much of the information contained in the

responses to these questions was not relevant to the research and is not discussed. The information applicable to the research is summarized in Appendices G, H, and I. The only information reported in these appendices is that which applies to the 20 services identified as appropriate for consideration by the Delphi panel for inclusion in the MACH wellness center.

Appendix G capsulizes the responses to Question 4 and outlines the minimum staffing presently employed by MACH to conduct these services. The minimum staffing levels were determined by examining the personnel supporting a particular type of service in all the areas in which it was offered. The lowest civilian pay grade or military rank employed to perform the service was selected as the minimum staffing level. Those services with both a civilian pay grade and military rank listed beside them were performed by both types of employees in different areas of the hospital. Half of the services, mainly those involving diagnostic testing, were carried out by employees in the civilian General Schedule (GS) pay grade of GS-4 or the military rank of E-4 and below. The rest of the services, most of which included interpretation of test results and counselling of patients, were performed by employees in the grade GS-5 or O-2 and above.

Appendix H captures the supply costs associated with one unit of each of these services, as reported in the responses to Question 5. One unit of service was defined as one blood pressure check, one nutrition and weight control counselling session, one HRA, etc. The researcher had planned upon multiplying the supply costs for one unit of a service by the workload for that service in order to determine the total supply costs associated with the service. However, because the workload data provided in response to Question

3 was so poor, total supply costs for the services presently offered by MACH could not be calculated.

Appendix I outlines the responses to Question 6. Although this question was worded to include only equipment costing $1,000 or more, the majority of respondents listed all durable equipment here, regardless of its cost. The equipment costs reported ranged from $25 for calipers to determine percentage body fat to $5,200 for a tonometer to screen for glaucoma.

Question 7 asked about computer hardware and software presently used to support the wellness services performed by MACH. Only five departments and services (14 percent) stated that they were employing a computer to assist in providing the services. All the computers identified were microcomputers. Two of the five computers were used to process HRAs. The remaining three computers were used primarily to perform word processing and manage supply budgets. Six departments and services (17 percent) left this question blank. The remaining 25 respondents (69 percent) stated that no computer support was used to provide the services.

The purpose of Question 8 was to obtain an estimate of the percentage of workload for each type of service that could be transferred from its present location to the wellness center. The responses to this question were directly related to the responses to Question 3. As noted earlier in the paper, the responses to Question 3 were incomplete and of doubtful accuracy. Twenty-two of the respondents (61 percent) stated that none of their workload could be transferred to the wellness center. Seven respondents (19 percent) left the question blank. The remaining seven respondents (19 percent) identified a variety of services and percentages of workload that could be transferred to the wellness center. Unfortunately, in every case, these same respondents had

not provided accurate, useful workload figures in Question 3. This meant that although the researcher could identify that a certain percentage of workload for a particular service should be transferred, she did not have an initial workload figure upon which to base further calculations. The responses to this question were essentially useless to the researcher in her efforts to project workload for the wellness center during phase 4 of the research.

Question 9 addressed the impact that the wellness center would have upon the departments and services surveyed. Three basic themes emerged from the answers to this question: 1) establishing the center would have little or no impact, 2) establishing the center would have a significant positive impact, and 3) establishing the center would have a significant negative impact. Ten respondents (28 percent) indicated that establishing the center would have little or no impact upon their departments or services. All ten respondents were from specialty clinics who were presently providing few wellness services. Twenty-three respondents (64 percent) stated that establishing the center would have a significant positive impact upon their departments or services. The main reason given for the positive impact was that the center would keep relatively healthy patients out of hospital clinics and allow the staff to concentrate its efforts on sick patients. Three respondents (8 percent) felt that the center would have a significant negative impact on their departments and services. They expressed the opinion that the hospital did not have the staff nor the funds to properly support the center. Since the majority of respondents felt that the center's impact would be positive, the answers to this question seemed to indicate staff support for the center.

Staff support for the center was further demonstrated in the responses to Question 10. The additional comments provided were very positive. The 23

respondents (72 percent) who made additional comments stated that they fully supported the idea of the center and were interested in assisting in its planning.

In summary, the results of the Wellness Center Survey allowed 20 services to be identified and recommended to the Delphi panel for inclusion in the wellness center. However, several limitations to the usefulness of the information obtained from the survey were identified. First, the workload information provided was extremely incomplete and was not broken down by service. This incomplete workload information detracted from the usefulness of much of the other information obtained from the survey in projecting demand and estimating resource requirements for the center. Second, the validity of the survey questionnaire was not as high as the 100 percent response rate seemed to indicate. Even though the questionnaire underwent two revisions and was successfully pretested with the Delphi panel, the wide variety of responses to the questions and the number of questions left blank led the researcher to conclude that respondents misunderstood some of the questions. Their responses did not provide the types of answers expected by the researcher. Therefore, the questions did not appear to measure what the researcher had intended them to measure. Just as with the results of the structured telephone interviews, the researcher determined that the information attained from this survey should be used with care and only in a general manner during other phases of the research.

Determination of Services and Projected Workload

In order to determine what services the wellness center should offer, the researcher combined information concerning the services provided by other MTFs obtained during the structured telephone interviews (Appendix C) with the services recommended by 50 percent or more of the MACH staff on the Wellness Center Survey (Appendix E). This information was presented to the Delphi panel for review. The panel members were asked to decide which services should be made available in the wellness center. The services recommended initially by each panel member were compiled and returned to all the members for review in order to further refine the list of services.

After three iterations of this process, the five panel members were unable to reach a consensus on services. However, three panel members did agree on services at the end of the third iteration. The researcher accepted the services recommended by this simple majority of the panel as the opinion of the overall panel.

The three panel members first identified the 17 services listed in Appendix J as essential to MACH's wellness center. They then stated that alcohol and drug abuse counselling should continue to be performed by the Alcohol and Drug Abuse Prevention and Control Program (ADAPCP) staff rather than being transferred to the center. The ADAPCP building is within walking distance of the proposed wellness center location. It is staffed with counsellors trained in handling alcohol and drug problems. Patients identified as having an alcohol or drug problem during a visit to the wellness center would be referred to ADAPCP. Pap smears, birth control counselling, and breast self-examination classes were also eliminated from the list because

they are already performed at the Women's Health Clinic (WHC). The building housing WHC is located adjacent to the proposed wellness center location. It is already staffed and physically configured to handle these specific services. The panel members determined that these four types of services should continue to be performed in their present locations. Once these four services were deleted from the list, the 13 services remaining were the ones recommended by the Delphi panel for inclusion in the wellness center. They were used by the researcher in planning for the center during the rest of the research.

After the services to be offered in the center were chosen by the Delphi panel, the researcher focused on projecting workload for the center. The initial attempt to estimate workload was made using information obtained during the review of the literature and regulations, directives, and policies. This attempt produced no useful workload information. The literature reviewed on civilian wellness centers contained no workload figures for these centers. The regulations, directives, and policies also did not include any workload information.

A second attempt at determining potential workload involved analyzing demographic features of the MACH beneficiary population such as age, sex, and category of beneficiary. The review of the civilian literature had produced information concerning such issues as which medical screening tests should be performed on individuals of a particular age and sex, how often these tests should be performed, and what percentage of a population of a particular age and sex was most likely to smoke or be overweight. The researcher intended to apply this information to the MACH beneficiary population to determine an

approximate number of individuals who would use the center over a one year period.

A computer printout of the Fort Benning population broken down by sex, age, and category of beneficiary was obtained from the Defense Enrollment Eligibility Reporting System (DEERS) Support Office in Monterey, California. A review of the printout revealed that the DEERS data base for Fort Benning had serious problems. For example, the printout listed more than 13,000 individuals under the age of 16 and more than 300 individuals over the age of 64 on active duty. A telephone conversation with the Director of the DEERS Support Office confirmed that the data base was very inaccurate (Nownes, 1987). For this reason, the researcher eliminated the analysis of the MACH beneficiary population as a method of obtaining workload information.

The researcher next attempted to estimate workload using the results of the structured telephone interviews with other MTFs. As mentioned earlier in the discussion section of this paper, the information provided by the other MTFs was incomplete and only very broadly applicable to the MACH wellness center. Specific workload figures could not be determined from the results of these interviews.

The fourth attempt to determine workload utilized information obtained from the survey of the MACH staff. This information also proved to be incomplete and of little assistance in providing specific workload figures.

The researcher summarized the failures of these four attempts to estimate workload and presented the problem to the Delphi panel. The panel was asked to assist the researcher in projecting workload for the center. One panel member proposed that since the wellness center was to be established in the PES that its workload be estimated as the average monthly workload of PES plus

a figure for additional workload generated by the creation of new wellness services. This proposal was presented to the entire Delphi panel for review. The consensus of the panel was that the workload figure to use in planning for the center should be the average monthly workload of PES plus approximately 200 additional patients.

The average monthly workload of PES reported in the MACH staff survey was 3,211 patients. A break down of these patients by category of beneficiary is contained in Appendix K. The Delphi panel recommended that 214 patients, separated into categories of beneficiaries as outlined in this appendix, be added to the existing PES workload to give a projected monthly workload figure of 3,425 patients for the wellness center. This workload figure was used in planning for the center during the succeeding phases of the research.

It is important to note that this workload figure is only a rough approximation of the average monthly workload for the center. There are at least two factors whose impact upon the center's workload cannot be predicted at the present time. First, the Fort Benning area is scheduled to receive a Primary Care for the Uniformed Services (PRIMUS) clinic during fiscal year 1988. Although no specific wellness services are included in the Fort Benning PRIMUS clinic contract, beneficiaries are certain to obtain at least some of the services offered by the wellness center from the PRIMUS clinic. Unfortunately, the number of beneficiaries who will use the clinic in lieu of the wellness center for their preventive health care is unknown. Second, the Delphi panel members acknowledged that it was very difficult for them to predict the usage of the center by category of beneficiary. They indicated that the breakdown of the 214 patients listed in Appendix K was only a rough

estimate of what would actually occur based upon their experience in the wellness field.

Determination of Required Resources

In determining the resources required in order for the center to provide the services recommended by the Delphi panel, the researcher drew upon information obtained from the structured telephone interviews with other MTFs and the survey of the MACH staff. Information contained in Appendices G, H, I, J, and K was utilized in combination with the PES response to the MACH staff survey. Costs were attached to the identified resources. The center's total resources and costs resulting from an analysis of this information are outlined in Appendices L, M, and N.

The development of the information on staffing, supplies, and equipment contained in Appendices L, M, and N for blood pressure checks is discussed in detail below. The resources associated with the rest of the services were developed in a manner similar to that used for blood pressure checks.

The minimum staffing for blood pressure checks was determined by reviewing Appendix G and the PES response to the MACH staff survey. Appendix G indicated that a civiliand employee in the grade of GS-3 or a military service member with the rank of E-3 could perform this service. The PES response stated that this service was presently being performed by two GS-3 civilian employees. Since the PES workload was used as a base figure in predicting the center's workload, it was determined that at least two personnel were required for this service. The researcher selected two GS-3 civilian employees rather than E-3 military service members because the civilians' salaries were

substantially lower than the military service members salaries. The salary rate for the civilians was taken from the standard GS pay table. The pay rate for the military members was taken from the 1987 Composite Standard Rates for Costing Personnel Services (Department of the Army, 1987a). The average step level for a GS-3 civilian employee at Fort Benning was verified as step level four (Creek, 1987). Therefore, the annual salary for a GS-3, step 4 was used in the cost calculations. This annual figure was divided by 12 to obtain the monthly salary figure reflected in Appendix L.

The supply costs associated with providing blood pressure checks were obtained by combining information in Appendix H with the PES response to the staff survey. No supply costs were involved in providing this service. For those services involving supply costs, the costs were calculated for one unit of service and multiplied by 3,425, the projected monthly workload for the center. This resulted in the total monthly supply costs listed in Appendix M.

Information found in Appendix I and the PES response to the staff survey was used to determine the equipment costs involved in providing blood pressure checks. The equipment costs were figured as one time costs associated with the initial establishment of the center. Since the MACH Commander's original concept was that the center would be highly automated, a computerized blood pressure machine, blood cholesterol analyzer, and HRA computer system were included among the items of equipment listed in Appendix N.

The total costs involved in offering the services recommended by the Delphi panel were separated into one time costs to establish the center and recurring costs to operate the center. The one time costs were to purchase equipment to initially outfit the center. They totalled $17,880. The

recurring costs, totalling $42,393.75 per month or $508,725 annually, were for salaries and supplies.

Appendices L, M, and N were presented to the Delphi panel for review. All five panel members agreed that the salary costs associated with the two O-2 Army Medical Specialist Corps officers for nutrition and weight control and exercise and physical fitness counselling, the one O-3 Medical Service Corps officer for stress management clinics, and the one Army Nurse Corps officer for smoking cessation clinics were prohibitive. They recommended that these services be eliminated from the center. Martin Army Community Hospital presently has staff members in these specialties conducting these services at the main hospital. Therefore, the panel decided that these services could best be provided by referring patients who were identified in the wellness center as needing the services to the main hospital. All other information contained in the appendices was approved by the Delphi panel without comment.

The revised services recommended by the Delphi panel for inclusion in the wellness center are listed in Appendix O. Eliminating nutrition and weight control counselling, exercise and physical fitness counselling, stress management clinics, and smoking cessation clinics from the services to be offered significantly reduced the center's required resources and costs. One time costs to establish the center were reduced to $16,730 by deleting equipment costing $1,150. Recurring costs were reduced by $24,704.50 per month or $296,454 per year. The revised total recurring costs were $17,689.25 per month or $212,271 per year.

Evaluation of the Feasibility of MACH Providing the Resources

The evaluation of the feasibility of MACH providing the resources required to support the center was conducted in two stages. The first stage consisted of an analysis of the current PES. The second stage involved comparing the services performed and the resources presently used in the PES to those needed for the wellness center.

The PES presently performs various types of physical examinations on all categories of beneficiaries. Types of physical examinations performed include periodic, separation, over 40, service academies and ROTC, military schools (Airborne, Ranger, Pathfinder, Officer Candidate School), Special Forces, employment, and sports physicals. Physical examinations for individuals are performed on a walk-in basis or by appointment depending upon the type of physical. Examinations for entire units are done by appointment only.

As noted earlier in the paper, the PES completes an average of 3,211 physical examinations per month. This workload is accomplished utilizing 18 civilian employees and one military employee. The PES functions are divided into 17 stations. Individuals rotate through these stations during the course of their physicals. The stations, services performed at each station, and staff required to support each station are detailed in Appendix P.

The PES presently uses a wide variety of supplies and equipment to support its workload. Supplies such as blood tubes, needles, alcohol swabs, bandages, X-ray film, developer, slides, and specimen cups are used routinely. During fiscal year 1987, the PES was budgeted $23,000 for these types of supplies (Kahn, 1987). Major equipment presently used by the PES includes a computerized blood pressure machine, sphygmomanometers, stethoscopes, a chest

X-ray machine, a processor, audiometers and an audiometric booth, vision testing machines, and scales. With the exception of the chest X-ray machine, this equipment has been purchased within the past five years and is in excellent condition.

The operations of the PES are accomplished in a building located approximately five miles from the main hospital. The building is over 40 years old but in good repair. It is two stories high and contains a total of 23,530 square feet of usable space. All of this space is currently occupied by the PES' stations, offices, and storage areas. Two parking lots with spaces for over 250 cars are located adjacent to the PES building. Although these parking areas are shared with four other facilities, they are rarely filled.

During the second stage of the evaluation, the researcher compared the services and resources of the PES to those required for the wellness center. As part of this comparison, Appendices L, M, N, O, and P were examined.

The PES already performs seven of the nine revised services to be offered by the wellness center outlined in Appendix O. The staff, supplies, and equipment to support these seven services are already available. The two services not presently performed by PES are HRAs and videotapes on wellness subjects. These services and the resources to support them would have to be added in order to create the wellness center.

According to the Chief, PES, these services could easily be added. Space for an extra station for HRAs is available in the area presently containing Station 3. A break area and waiting room on the second floor could be modified to provide space for a videotape library and viewing area. No engineering work would be required to make these changes (Kahn, 1987).

These two additional services would be incorporated into all physical examinations performed at the PES. In addition, selected stations (1, 2, 4, 6, 7, 8, 9, 13, 14, 15, and 16) would be available to the 214 patients projected to use only the wellness services. There are times when the building is crowded with personnel processing through the stations. This usually occurs when entire units are obtaining physical examinations. Much of the time, however, there is excess capacity at the stations that could accomodate these 214 indiviuals. In order to avoid having individuals arrive for wellness services at peak physical examination times, the procedures of the PES could be modified. Physical examinations for both individuals and units would be conducted by appointment only. The hours when physical examinations were available would be separate from those when wellness services were offered.

The additional resources required to convert the PES to a wellness center would be minimal. Two GS-3 civilian employees to administer HRAs and produce computer printouts with results would be the only added staff necessary. The cost for these employees would be $2,163.50 per month or $25,962 annually. Extra supplies required would include paper, pencils, and computer mark sense forms to process HRAs on 3,425 patients per month plus increased amounts of supplies already used by the PES to support the additional 214 patients receiving only wellness services. These supplies would cost approximately $3,799.50 per month or $45,594 annually. Total recurring costs for additional staff and supplies would be $71,556 annually.

The purchase of a blood cholesterol analyzer, a computer system and software for HRAs, two videocassette recorders, two television sets, and a

videotape library on wellness subjects would be required on a one time basis to establish the center. The total cost for this equipment would be $10,800.

Martin Army Community Hospital is not capable of providing all the additional resources necessary to support the wellness center. The hospital presently has no funds available to hire extra personnel. Supply monies are also severely limited. Even the $10,800 required to purchase equipment is not available in the current MACH budget. It is anticipated that the hospital's fiscal year 1988 budget will be between $250,000 and $500,000 less than the fiscal year 1987 budget (Department of the Army, 1987b; Department of the Army, 1987c).

The funds to support the establishment and continued operation of the wellness center should be sought from two sources, HSC and the Fort Benning installation. During the telephone interview with the HSC Community Health Nurse Staff Officer, the researcher discovered that HSC plans to provide an as yet undetermined amount of funds to all CONUS MTFs during fiscal year 1988 to support their wellness programs. This money is to be used to purchase staff, supply, and equipment resources to develop whatever wellness services MTF Commanders deem appropriate for their installations (Ashjian, 1987). At a minimum, MACH should request the $10,800 needed to equip the center and 50 percent of the recurring costs for the first year of operation. The total amount MACH should request during fiscal year 1988 from HSC should be $46,578. Requests for funds in subsequent years should be based on what is required at that time.

The other 50 percent of the recurring costs for the center's first year of operation, a total of $35,778, should be solicited from the Fort Benning installation. According to DOD Directive 1010.10 (Health Promotion), the

primary responsibility for an installation's wellness program rests with the installation Commander (Department of Defense, 1986). Therefore, the installation Commander should contribute funds to support a center which will assist him in accomplishing a part of his mission.

III. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The researcher concluded that it is feasible to establish a wellness center at MACH. The results of the research seem to indicate that staff support for the center is present, space to house the center is available in the PES building, parking space adjacent to the building is available, and the additional resources required to support the center are minimal.

The major problem anticipated with establishing the center is obtaining funds from HSC and Fort Benning to supplement funds invested by MACH. The probability of HSC providing funds during fiscal year 1988 is high. The likelihood of acquiring funds from the installation is an unknown factor which requires further investigation.

The researcher also concluded that only the wellness services recommended by the Delphi panel should be included in the center. The other wellness services currently offered by MACH should continue to be performed in their present locations. The resources to support these services are already in place at their present locations. Allowing the services to remain at their current locations appears to be the most cost effective means of insuring that the maximum number of wellness services are available at MACH.

Recommendations

The following recommendations are made concerning the MACH wellness center:

1. It is recommended that the wellness center be established within the confines of the PES building with the services and resources outlined in this paper.

2. It is recommended that the other wellness services currently offered by MACH continue to be performed in their present locations with their existing resources.

3. It is recommended that policies and procedures be established to govern operation of the center including such topics as access to the center, handling of paperwork generated by the center, and referral of patients to specialty clinics for more definitive medical care.

4. It is recommended that actions be taken to procure the additional resources required to operate the center. Actions should include requesting funds from HSC and the installation, submitting a request to HSC to have the center officially recognized as a MACH mission, submitting an interim manpower document to have the two additional civilian employees performing HRAs recognized on MACH's Table of Distribution and Allowances, and submitting requisitions for supplies and equipment.

5. It is recommended that coordination be effected with the installation Commander and his staff concerning the changes in services that will occur when the center is opened. The services planned for the center and the existing wellness services performed by MACH should be integrated into the

installation's overall wellness program as required by DOD Directive 1010.10 (Health Promotion).

6. It is recommended that a marketing plan be developed for the wellness center. The plan should include articles for the MACH and installation bulletins and the Fort Benning newspaper; flyers to be placed in hospital clinics, the Post Exchange, and the Commissary; information sheets to be placed in the installation and hospital welcome packets; and briefings and classes for units, the U.S. Army Infantry School, civilian employee groups, and local military community organizations.

APPENDIX A

COVER LETTER AND TELEPHONE SURVEY OF MEDICAL TREATMENT FACILITIES

APPENDIX A

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY MEDICAL DEPARTMENT ACTIVITY
FORT BENNING, GEORGIA 31905-6100

HSXB-AR

11 May 1987

SUBJECT: Request for Wellness Center Information

Preventive Medicine Department
Evans Army Community Hospital
ATTN: LTC Mallory
Fort Carson, Colorado 80913-5207

1. Reference is made to my telephone conversation with 1LT Lasure, your activity, on 7 May 1987.

2. Martin Army Community Hospital (MACH), Fort Benning, Georgia, is planning to establish a wellness center. As part of the planning process, I have been tasked by the MACH Commander to conduct a survey of other Military Treatment Facilities (MTF) that operate wellness centers. This letter is to request your assistance in completing the survey attached at Enclosure 1 concerning the operation of your wellness center.

3. The information obtained from this survey will be used in MACH's planning process for a wellness center. In addition, the consolidated results from the MTFs surveyed will be included in a report to the U.S. Army Academy of Health Sciences as part of my completion of a Masters Degree in the U.S. Army-Baylor University Graduate Program in Health Care Administration.

4. As I mentioned during referenced telephone conversation, I will be calling you in approximately two weeks in order to obtain your responses to the survey questions. I hope this will provide sufficient time to gather the data since the time frame for completion of the project is rather short.

5. If you have any questions or experience problems in completing the survey, please call me at AUTOVON 784-2516/1512 or Commercial (404) 544-2516/1512.

6. Thank you very much for your assistance in this matter.

Encl

ANN E. SAUNDERS
Captain, MS
Administrative Resident

Telephone Survey of Medical Treatment Facilities

Purpose of the survey: To obtain information concerning the operation of your wellness center which might prove useful in planning for a wellness center at Martin Army Community Hospital, Fort Benning, Georgia.

Date:

Name of individual completing survey:

Duty position:

Address:

Telephone number - AUTOVON:
Commercial:

1) How long has your wellness center been in operation?

2) What services does the center offer?

_____ Physical examinations
_____ Health risk appraisals
_____ Blood pressure checks
_____ Height and weight checks
_____ Determination of percent body fat
_____ Resting and stress EKG
_____ Blood cholesterol level
_____ Triglyceride level
_____ Glucose level
_____ Pulmonary function tests
_____ Hearing tests
_____ Glaucoma screening
_____ Mammograms
_____ Pap smears
_____ Stool guaiac tests
_____ Digital rectal examinations
_____ Proctosigmoidoscope examinations
_____ Well-baby clinics
_____ Birth control counselling
_____ Immunizations
_____ Nutrition and weight counselling
_____ Stress management clinics
_____ Smoking cessation clinics
_____ Exercise and physical fitness counselling
_____ Alcohol and drug abuse counselling

_____ Breast/testicular self-examination classes
_____ Videotapes on wellness subjects
_____ Aerobics classes
_____ Gymnasium facilities
_____ Other - please specify
_____
_____
_____
_____

3) To whom are these services offered?

_____ Active Duty
_____ Dependents of AD
_____ Retirees
_____ Dependents of Ret and deceased
_____ Civilian employees
_____ Other - please explain

4) What is the present composition of your beneficiary population?

Category of Beneficiary	Number
Active duty	_____
Dependents of AD	_____
Retirees	_____
Dependents of Ret and deceased	_____
Other - please specify	_____

5) What is the total number of civilian employees at your installation?

6) What is the average monthly workload of your center broken down by category of beneficiary and type of service identified in Question #2?

Service and Category of Beneficiary	Monthly Workload
Service: _______________	
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
Service: _______________	
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
Service: _______________	
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
Service: _______________	
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
Service: _______________	
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________

7) What is the average monthly cost to operate your center? If this information is not available, what is the annual budget for the center?

8) What were/are the major problems encountered in:

a) Establishing the center?

b) Operating the center?

9) What improvements would you like to see made in the center to overcome these problems?

10) Additional comments:

APPENDIX B

COVER LETTER AND WELLNESS CENTER SURVEY

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSXB-AR (40)	Wellness Center Survey

TO SEE DISTRIBUTION FROM Commander, MEDDAC DATE 20 May 87 CMT 1
CPT Saunders/ad/544-2516

1. In recent years, the popularity of the wellness movement has been steadily growing. Many civilian hospitals now offer wellness programs to both their own employees and to businesses in the local community. These wellness programs usually include a means of evaluating the health status and lifestyle risk factors of an individual, as well as educational programs in such areas as smoking cessation, nutrition and weight control, and stress management. Often, the hospitals create wellness centers to consolidate all of their programs under one roof and make them more accessible to interested individuals.

2. I am considering establishing such a center here at Martin Army Community Hospital (MACH). As you are undoubtedly aware, we presently offer a number of programs designed to enhance the health of our military community. Currently, these programs are located in many different areas of the hospital. A wellness center would provide a central location for our programs and, hopefully, make them more accessible to our beneficiary population. I envision locating the center in a building separate from the hospital, possibly in the Physical Exam Service building. This would keep relatively healthy individuals out of the hospital. If we can assist these individuals in their efforts to prevent illness, they may never return to MACH as patients.

3. I am asking for your assistance in evaluating the feasibility of establishing the wellness center. CPT Saunders, the Administrative Resident, has developed a questionnaire which I would like you to complete. The questionnaire is attached as Enclosure 1. The purpose of the questionnaire is to obtain information about wellness programs that your department or service is presently supporting and the impact that creating the center would have upon your organization. In answering the questionnaire, please keep in mind that MACH can request additional resources from post and Health Services Command if our resources alone cannot support the center.

4. Please complete the questionnaire, place it in the envelope provided, and return it to CPT Saunders by 18 Jun 87. If you have questions concerning the questionnaire, please contact her at 544-2516/1512.

Encl

JOHN C. RICHARDS, M.D.
Colonel, Medical Corps
Commanding

DISTRIBUTION:
C, NCD
C, Community Mental Hlth Svc
C, Dept of Psychiatry
C, Psychology Svc
(CONT'D)

DA FORM AUG 80 2496 PREVIOUS EDITIONS WILL BE USED

HSXB-AR (40) 20 May 87
SUBJECT: Wellness Center Survey

DISTRIBUTION: (CONT'D)
C, Dept of Radiology
C, Dept of Nursing
C, SWS
C, Depts of FP/PCCM
  C, FPCCS
  C, EACS
C, Dept of Med
  C, Allergy
  C, Cardiology
  C, Dermatology
  C, Gastroenterology
  C, Internal Med
  C, Pulmonology
  C, Pediatrics
C, Dept of Surgery
  C, Gen Surgery
  C, Ob-Gyn
  C, Urology
  C, Orthopedic
  C, Occupational Therapy
  C, Physical Therapy
  C, Ophthalmology
  C, Otolaryngology
  C, Optometry
  C, Audiology
Clinical Dir, ADAPCP
C, PVNT MED
  Comm Health Nurse
  Occu Health Nurse
  C, STD Clinic

Wellness Center Survey

Date:

Name of individual completing survey:

Duty position:

Department or service:

Phone number:

1) Place a check mark in front of the types of services listed below which you feel should be offered by a wellness center established at Martin Army Community Hospital:

_____ Blood pressure checks (as part of hypertension control)
_____ Height and weight checks
_____ Determination of percent body fat
_____ Resting and stress EKG
_____ Blood cholesterol level
_____ Blood triglyceride level
_____ Blood glucose level
_____ Pulmonary function tests
_____ Hearing tests
_____ Glaucoma screening
_____ Mammograms
_____ Pap smears
_____ Stool guaiac tests
_____ Digital rectal examinations
_____ Proctosigmoidoscopic examinations
_____ Physical examinations
_____ Health risk appraisals
_____ Immunizations
_____ Birth control counselling
_____ Nutrition and weight control counselling
_____ Exercise and physical fitness counselling
_____ Alcohol and drug abuse counselling
_____ Stress management clinics
_____ Smoking cessation clinics
_____ Well-baby clinics
_____ Breast self-examination classes
_____ Videotapes on wellness subjects
_____ Aerobics classes
_____ Gymnasium facilities
_____ Wellness hotline
_____ Other - please specify

---

2) Place a check mark in front of the types of services listed below which are presently offered by your department or service:

_____ Blood pressure checks (as part of hypertension control)
_____ Height and weight checks
_____ Determination of percent body fat
_____ Resting and stress EKG
_____ Blood cholesterol level
_____ Blood triglyceride level
_____ Blood glucose level
_____ Pulmonary function tests
_____ Hearing tests
_____ Glaucoma screening
_____ Mammograms
_____ Pap smears
_____ Stool guaiac tests
_____ Digital rectal examinations
_____ Proctosigmoidoscopic examinations
_____ Physical examinations
_____ Health risk appraisals
_____ Immunizations
_____ Birth control counselling
_____ Nutrition and weight control counselling
_____ Exercise and physical fitness counselling
_____ Alcohol and drug abuse counselling
_____ Stress management clinics
_____ Smoking cessation clinics
_____ Well-baby clinics
_____ Breast self-examination classes
_____ Videotapes on wellness subjects
_____ Aerobics classes
_____ Gymnasium facilities
_____ Wellness hotline
_____ Other - please specify

_____
_____
_____
_____
_____

3) What is the average monthly workload for the services identified in Question 2 broken down by type of service and category of beneficiary? This page may be reproduced as many times as necessary to provide information on all the types of services offered by your department or service.

Type of Service: ___________________________

Category of Beneficiary	Average Monthly Workload
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
TOTAL	________

Type of Service: ___________________________

Category of Beneficiary	Average Monthly Workload
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
TOTAL	________

Type of Service: ___________________________

Category of Beneficiary	Average Monthly Workload
Active Duty	________
Dependents of AD	________
Retirees	________
Dependents of Ret and Deceased	________
Civilian employees	________
Other	________
TOTAL	________

4) What staff is your department or service using to perform <u>one unit of service</u> for those services identified in Question 2? One unit of service is defined as one physical examination, one mammogram, one nutrition and weight control counselling session, one smoking cessation clinic, etc. If a clinic consists of more than one meeting for a group of patients (i.e. a smoking cessation clinic that consists of four group meetings), record the staff required to conduct the <u>total</u> clinic by adding together the requirements for each meeting. This page may be reproduced as many times as necessary to provide information on all the types of services offered by your department or service.

Type of Service: _____

Officer: Branch (i.e. MC, AN, etc.) _____
Rank _____
Amount of time spent per unit of service (in minutes) _____

Branch (i.e. MC, AN, etc.) _____
Rank _____
Amount of time spent per unit of service (in minutes) _____

Enlisted: Rank (i.e. E-5, etc.) _____
Amount of time spent per unit of service (in minutes) _____

Rank (i.e. E-5, etc.) _____
Amount of time spent per unit of service (in minutes) _____

Civilian (excluding contract personnel):
Grade (i.e. GS-5, etc.) _____
Amount of time spent per unit of service (in minutes) _____

Grade (i.e. GS-5, etc.) _____
Amount of time spent per unit of service (in minutes) _____

Contract personnel:
Duty title (i.e. radiologist, cardiologist, etc.) _____
Amount of time spent per unit of service (in minutes) _____

5) What is the estimated supply cost (MDS costs plus SSSC costs plus all other supply costs) per unit of service for these services?

Type of Service	Estimated Supply Cost Per Unit of Service

6) What equipment (costing $1,000 or more) is required to perform these services? If no equipment is required, please annotate as "None." This page may be reproduced as many times as necessary to provide information on all types of services offered by your department or service.

Type of Service: _____

Type of Equipment	Quantity	Estimated Cost

Type of Service: _____

Type of Equipment	Quantity	Estimated Cost

Type of Service: _____

Type of Equipment	Quantity	Estimated Cost

7) What computer support (hardware and software) is your department or service using to support these services?

8) If a wellness center were established, what percentage of the workload identified in Question 3 do you estimate could be transferred to the wellness center?

Type of Service	Estimated Percentage of Workload That Could Be Transferred

9) If a wellness center were established, what impact do you feel this would have upon your department or service?

10) Additional comments:

APPENDIX C

SERVICES OFFERED BY WELLNESS CENTERS AT OTHER MTFS

APPENDIX C

Table 1

Services Offered by Wellness Centers at Other MTFs

Service	Number of Centers Offering Service	Number of Centers Referring Patients to Specialty Clinics for Service
Physical examinations	4	1
Health risk appraisals	5	-
Blood pressure checks	5	-
Height and weight checks	5	-
Determination of percent body fat	2	3
Resting and stress EKG	1	4
Blood cholesterol levels	5	-
Blood triglyceride levels	5	-
Blood glucose levels	5	-
Pulmonary function tests	-	5
Hearing tests	-	5
Glaucoma screening	-	5
Mammograms	-	5
Pap smears	-	5
Stool guaiac tests	-	5
Digital rectal examinations	-	5
Proctosigmoidoscopic examinations	-	5
Well-baby clinics	-	5
Birth control counselling	-	5
Immunizations	-	5
Nutrition and weight control counselling	4	1
Stress management clinics	4	1
Smoking cessation clinics	3	2
Exercise and physical fitness counselling	4	1
Alcohol and drug abuse counselling	-	5
Breast/testicular self-examination classes	3	2
Videotapes on wellness subjects	4	-
Aerobics classes	2	-
Gymnasium facilities	2	-
Other - Back school	1	-

APPENDIX D

POTENTIAL BENEFICIARY POPULATIONS OF WELLNESS CENTERS

APPENDIX D

Table 2

Potential Beneficiary Populations of Wellness Centers

Category of Beneficiary	Number of Individuals in Each Category by MTF					
	Ft. Benning	Ft. Bragg	WBAMC	MAMC	Ft. Leaven-worth	Ft. Carson
Active Duty	28,670[a]	46,300	Not provided	26,000	5,370	19,800
Dependents of Active Duty	28,770[a]	80,000	"	50,000	Not provided	27,350
Retirees	10,900[a]	25,230	"	30,000	2,420	31,620
Dependents of Retirees & Deceased Service Members	26,800[a]	48,630	"	30,000	Not provided	54,130
Civilian Employees	10,190[a]	11,670	"	6,000	"	4,460
TOTAL	105,330[a]	211,830	No data	142,000	Incomplete	137,360

[a] Source: Command Performance Summary, August 1987, USAMEDDAC, Fort Benning, Georgia.

APPENDIX E

SERVICES RECOMMENDED BY MACH STAFF FOR THE WELLNESS CENTER

APPENDIX E

Table 3

Services Recommended by MACH Staff for the Wellness Center

Service	Staff Members Identifying That Service Should be Offered in MACH's Wellness Center	
	Number	Percent of Total Staff Members Surveyed
Blood pressure checks	33	92
Height and weight checks	33	92
Nutrition and weight control counselling	32	89
Smoking cessation clinics	32	89
Exercise and physical fitness counselling	31	86
Stress management clinics	31	86
Videotapes on wellness subjects	31	86
Blood glucose levels	29	81
Blood cholesterol levels	28	78
Health risk appraisals	28	78
Breast self-examination classes	28	78
Hearing tests	27	75
Blood triglyceride levels	26	72
Glaucoma screening	26	72
Alcohol and drug abuse counselling	24	67
Wellness hotline	24	67
Determination of percent body fat	22	61
Stool gualac tests	22	61
Birth control counselling	21	58
Immunizations	18	50
Physical examinations	17	47
Pap smears	16	44
Digital rectal examinations	16	44
Well-baby clinics	14	39
Mammograms	12	33
Aerobics classes	11	31
Resting and stress EKG	8	22
Pulmonary function tests	8	22
Gymnasium facilities	8	22
Proctosigmoidoscopic examinations	4	11
Other - Back school	1	3

APPENDIX F

WELLNESS SERVICES PRESENTLY OFFERED BY MACH

APPENDIX F

Table 4

Wellness Services Presently Offered by MACH

Service	Number of Departments or Services Offering the Service
Height and weight checks	9
Blood pressure checks	7
Nutrition and weight control counselling	7
Stool guaiac tests	6
Digital rectal examinations	6
Physical examinations	6
Blood glucose levels	5
Exercise and physical fitness counselling	5
Blood cholesterol levels	4
Blood triglyceride levels	4
Hearing tests	4
Alcohol and drug abuse counselling	4
Pulmonary function tests	3
Proctosigmoidoscopic examinations	3
Health risk appraisals	3
Immunizations	3
Birth control counselling	3
Stress management clinics	3
Breast self-examination classes	3
Resting and stress EKG	2
Pap smears	2
Smoking cessation clinics	2
Well-baby clinics	2
Videotapes on wellness subjects	2
Determination of percent body fat	1
Glaucoma screening	1
Mammograms	1
Aerobics classes	0
Gymnasium facilities	0
Wellness hotline	0

APPENDIX G

MINIMUM STAFFING FOR SERVICES PRESENTLY OFFERED BY MACH

APPENDIX G

Table 5

Minimum Staffing for Services Presently Offered by MACH

Service	Staffing
Blood pressure checks	GS-3 or E-3
Height and weight checks	GS-3 or E-3
Nutrition and weight control counselling	O-2 (SP) *
Smoking cessation clinics	O-3 (AN) **
Exercise and physical fitness counselling	O-2 (SP)
Stress management clinics	O-3 (MS) ***
Videotapes on wellness subjects	None
Blood glucose levels	GS-4 or E-4
Blood cholesterol levels	GS-4 or E-4
Health risk appraisals	GS-3
Breast self-examination classes	O-3 (AN)
Hearing tests	GS-4 or E-4
Blood triglyceride levels	GS-4 or E-4
Glaucoma screening	E-4
Alcohol and drug abuse counselling	GS-7
Wellness hotline	Not presently offered
Determination of percent body fat	O-2 (SP)
Stool guaiac tests	GS-3
Birth control counselling	O-3 (AN)
Immunizations	GS-4 or E-4

* SP = Army Medical Specialist Corps
** AN = Army Nurse Corps
*** MS = Medical Service Corps

APPENDIX H

SUPPLY COSTS PER UNIT OF SERVICE FOR SERVICES PRESENTLY OFFERED BY MACH

APPENDIX H

Table 6

Supply Costs Per Unit Of Service for Services Presently Offered by MACH

Service	Supply Cost
Blood pressure checks	-
Height and weight checks	-
Nutrition and weight control counselling	$1.00
Smoking cessation clinics	$ .50
Exercise and physical fitness counselling	$ .50
Stress management clinics	$ .50
Videotapes on wellness subjects	-
Blood glucose levels	$ .50
Blood cholesterol levels	$ .50
Health risk appraisals	$1.00
Breast self-examination classes	-
Hearing tests	-
Blood triglyceride levels	$ .50
Glaucoma screening	-
Alcohol and drug abuse counselling	-
Wellness hotline	Not presently offered
Determination of percent body fat	-
Stool guaiac tests	$ .25
Birth control counselling	-
Immunizations	$1.50

APPENDIX I

EQUIPMENT COSTS FOR SERVICES PRESENTLY OFFERED BY MACH

APPENDIX I

Table 7

Equipment Costs for Services Presently Offered by MACH

Service	Item of Equipment	Cost
Blood pressure checks	Computerized blood pressure machine	$1,500
	or	
	Sphygmomanometer	$50
	Stethoscope	$40
Height and weight checks	Scale	$150
Nutrition and weight control counselling	Food models	$1,000
Smoking cessation clinics	Spirometer	$150
Exercise and physical fitness counselling	-	-
Stress management clinics	-	-
Videotapes on wellness subjects	Videocassette recorder	$500
	Videotape library	$1,500
	Television set	$400
Blood glucose levels	-	-
Blood cholesterol levels	-	-
Health risk appraisals	Computer system	$2,000
	Software	$500
Breast self-examination classes	-	-
Hearing tests	Audiometer	$1,500
	Audiometric examination booth	$2,600
Blood triglyceride levels	-	-
Glaucoma screening	Tonometer	$5,200

APPENDIX I (Continued)

Table 7

Equipment Costs for Services Presently Offered by MACH

Service	Item of Equipment	Cost
Alcohol and drug abuse counselling	-	-
Wellness hotline	Not presently offered	
Determination of percent body fat	Calipers	$25
Stool guaiac tests	-	-
Birth control counselling	-	-
Immunizations	Refrigerator	$1,000

APPENDIX J

SERVICES RECOMMENDED BY THE DELPHI PANEL FOR THE MACH WELLNESS CENTER

APPENDIX J

Services Recommended by the Delphi Panel for the MACH Wellness Center

Blood pressure checks
Height and weight checks
Blood cholesterol levels
Blood triglyceride levels
Blood glucose levels
Health risk appraisals
Stool gualac tests
Hearing tests
Videotapes on wellness subjects
Nutrition and weight control counselling
Exercise and physical fitness counselling
Stress management clinics
Smoking cessation clinics
* Alcohol and drug abuse counselling - ADAPCP
* Pap smears - Women's Health Clinic
* Birth control counselling - Women's Health Clinic
* Breast self-examination classes - Women's Health Clinic

* Offered in location separate from wellness center

APPENDIX K

PROJECTED AVERAGE MONTHLY WORKLOAD FOR THE WELLNESS CENTER

APPENDIX K

Table 8

Projected Average Monthly Workload for the Wellness Center

Category of Beneficiary	Average Monthly Workload PES	Estimated Additional Workload	Total
Active Duty	2,976	45	3,021
Dependents of Active Duty	51	55	106
Retirees	50	60	110
Dependents of Retirees & Deceased Service Members	52	50	102
Civilian employees	18	4	22
Other - ROTC Students	64	-	64
TOTAL	3,211	214	3,425

APPENDIX L

REQUIRED STAFFING FOR MACH WELLNESS CENTER

APPENDIX L

Table 9

Required Staffing for MACH Wellness Center

Service	Staff	Quantity	Monthly Cost Per Individual	Total Monthly Cost
Blood pressure checks	GS-3	2	$1,081.75	$2,163.50
Height and weight checks	GS-3	1	$1,081.75	$1,081.75
Blood cholesterol levels Blood triglyceride levels Blood glucose levels	GS-4	1	$1,214.50	$1,214.50
Health risk appraisals	GS-3	1	$1,081.75	$1,081.75
Stool guaiac tests	GS-6	1	$1,514.50	$1,514.50
Hearing tests	GS-4	1	$1,214.50	$1,214.50
Videotapes on wellness subjects	None	-	-	-
Nutrition and weight control counselling	O-2 (SP)	1	$3,487.00	$3,487.00
Exercise and physical fitness counselling	O-2 (SP)	1	$3,487.00	$3,487.00
Stress management clinics	O-3 (MS)	1	$4,584.00	$4,584.00
Smoking cessation clinics	O-3 (AN)	1	$4,584.00	$4,584.00
			TOTAL	$24,412.50

APPENDIX M

REQUIRED SUPPLY RESOURCES FOR MACH WELLNESS CENTER

APPENDIX M

Table 10

Required Supply Resources for MACH Wellness Center

Service	Supplies Per Unit of Service	Cost Per Unit of Service	Total Monthly Supply Costs *
Blood pressure checks	-	-	-
Height and weight checks	-	-	-
Blood cholesterol levels	Glass tube, needle, alcohol swab, bandage	$ .50	$1,712.50
Blood triglyceride levels	"	$ .50	$1,712.50
Blood glucose levels	"	$ .50	$1,712.50
Health risk appraisals	Paper, pencils, computer mark sense forms	$1.00	$3,425.00
Stool guaiac tests	Slide, developer	$ .25	$856.25
Hearing tests	-	-	-
Videotapes on wellness subjects	-	-	-
Nutrition and weight control counselling	Handouts	$1.00	$3,425.00
Exercise and physical fitness counselling	Handouts	$ .50	$1,712.50
Stress management clinics	Handouts	$ .50	$1,712.50
Smoking cessation clinics	Handouts	$ .50	$1,712.50
		TOTAL	$17,981.25

* Total monthly supply costs = Cost per unit of service X 3,425 patients

APPENDIX N

REQUIRED EQUIPMENT RESOURCES FOR MACH WELLNESS CENTER

APPENDIX N

Table 11

Required Equipment Resources for MACH Wellness Center

Service	Equipment	Quantity	Cost Per Item	Total Cost
Blood pressure checks	Computerized blood pressure machine	1	$1,500	$1,500
	Sphygmomanometer	2	$50	$100
	Stethoscope	2	$40	$80
Height and weight checks	Scale	1	$150	$150
Blood cholesterol levels Blood triglyceride levels	Blood cholesterol analyzer	1	$5,000	$5,000
Blood glucose levels	-	-	-	-
Health risk appraisals	Computer system	1	$2,000	$2,000
	Software	1	$500	$500
Stool guaiac tests	-	-	-	-
Hearing tests	Audiometer	1	$1,500	$1,500
	Audiometric examination booth	1	$2,600	$2,600
Videotapes on wellness subjects	Videocassette recorder	2	$500	$1,000
	Videotape library	1	$1,500	$1,500
	Television set	2	$400	$800
Nutrition and weight control counselling	Food models	1	$1,000	$1,000
Exercise and physical fitness counselling	-	-	-	-
Stress management clinics	-	-	-	-
Smoking cessation clinics	Spirometer	1	$150	$150
			TOTAL	$17,880.00

APPENDIX O

SERVICES (REVISED) RECOMMENDED BY THE DELPHI PANEL FOR THE MACH WELLNESS CENTER

APPENDIX O

Services (Revised) Recommended by the Delphi Panel for the MACH Wellness Center

Blood pressure checks
Height and weight checks
Blood cholesterol levels
Blood triglyceride levels
Blood glucose levels
Health risk appraisals
Stool guaiac tests
Hearing tests
Videotapes on wellness subjects

APPENDIX P

STATIONS AND STAFFING OF PHYSICAL EXAMINATION SERVICE

APPENDIX P

Table 12

Stations and Staffing for Physical Examination Service

Station Number	Service Performed	Staffing
1	Preparation of physical examination paperwork	GS-3 - 1 ea.
2	Vital signs - blood pressure, temperature, and pulse	GS-3 - 2 ea.
3	Logging patient in on daily roster and entering into Tri-Service Radiology (TRIRAD) computer	GS-3 - 1 ea.
4	Urinalysis - glucose, protein, specific gravity, and microscopy	GS-3 - 1 ea.
5	Chest X-ray	GS-5 - 1 ea.
6	Hearing test using audiometer - done only with small groups of patients	GS-3 - 1 ea. (Same individual as Station #10)
7	Distant vision	GS-3 - 1 ea.
8	Height, weight, near vision, and color vision	GS-3 - 1 ea.
9	Blood collection - glucose, cholesterol, triglyceride, and others, as required	GS-4 - 1 ea.
10	Hearing test using audiometric booth - done with large groups of patients	GS-3 - 1 ea. (Same individual as Station #6)
11 and 12	Physicians	GS-12 and O-3 (MC)
13	Digital rectal examination and stool guaiac test	GS-6 - 1 ea.
14	Review of paperwork for completeness and preparation of consult paperwork	GS-9 - 1 ea.

APPENDIX P (Continued)

Table 12

Stations and Staffing for Physical Examination Service

Station Number	Service Performed	Staffing
15	Scheduling of consult appointments	GS-3 - 2 ea.
16	Recall of patients with abnormal test results and final review of paperwork for completeness	GS-5 - 1 ea.
17	Distribution of physical results to patient, medical records, and file.	GS-4 - 2 ea.

BIBLIOGRAPHY

Books

Bader, B.S., Jones, L.D., & Yenney, S. (1982). Planning hospital health promotion services for business and industry. Chicago: American Hospital Association.

Cunningham, R.M. (1982). Wellness at work. Chicago: Blue Cross Association.

Eastaugh, S.R. (1981). Medical economics and health finance. Boston: Auburn House Publishing Company.

Longe, M.E., & Wolf, A. (1984). Promoting community health through innovative hospital-based programs. Chicago: American Hospital Publishing, Inc.

Meshenberg, K.A., & Burns, L.A. (Eds.). (1983). Hospital ambulatory care: Making it work. Chicago: American Hospital Association.

Polit, D.F., & Hungler, B.P. (1983). Nursing research. Principles and methods (2nd ed.). Philadelphia, PA: J.B. Lippincott Company.

Taylor, R.B., Ureda, J.R., & Denham, J.W. (Eds.). (1982). Health promotion: Principles and clinical applications. Norwalk, Connecticut: Appleton-Century-Crofts.

Government Publications

Department of the Army. (1983). Training support package. Physical fitness training: Total fitness. Washington, D.C.: U.S. Government Printing Office.

Department of the Army. (1984). Medical System Program Review: Issues, scripts, and slides. Vol. 2. Fort Sam Houston, TX: Academy of Health Sciences.

Department of the Army. (1985a). AMEDD support of the Army Total Fitness Program (HSC Reg. 40-27). Fort Sam Houston, TX: U.S. Army Health Services Command.

Department of the Army. (1985b). The Army physical fitness program (AR 350-15). Washington, D.C.: U.S. Government Printing Office.

Department of the Army. (1986). Fort Benning MEDDAC Long Range Plan. Fort Benning, GA: U.S. Army Medical Department Activity.

Department of the Army. (1987a). Composite Standard Rates for Costing Personnel Services - FY87 - Revised. Fort Sam Houston, TX: U.S. Army Health Services Command.

Department of the Army. (1987b). First Quarter FY 88 Supply and Workload Targets. Fort Benning, GA: U.S. Army Medical Department Activity.

Department of the Army. (1987c). Minutes of the Program Budget Advisory Subcommittee, 13 April 1987. Fort Benning, GA: U.S. Army Medical Department Activity.

Department of Defense. (1986). Health promotion (DOD Directive 1010.10). Washington, D.C.: Department of Defense.

Public Health Service. (1979). Healthy people: The Surgeon General's report on health promotion and disease prevention (DHEW Publication No. 79-55071). Washington, D.C.: U.S. Government Printing Office.

Interviews

Ashjian, Colonel Ann, Community Health Nurse Staff Officer, Headquarters, U.S. Army Health Services Command, Fort Sam Houston, Texas. Interview, 6 May 1987.

Creek, Sheryl, Management-Employee Relations Branch, Civilian Personnel Office, Fort Benning, Georgia. Interview, 11 June 1987.

Kahn, Major Zehara, Chief, Physical Examination Service, Department of Family Practice and Community Medicine, Martin Army Community Hospital, Fort Benning, Georgia. Interview, 11 June 1987.

Nownes, Captain (USMC) Rose, Director, Defense Enrollment Eligibility Reporting System Support Office, Monterey, California. Interview, 8 May 1987.

Richards, Colonel John C., Commander, Martin Army Community Hospital, Fort Benning, Georgia. Interview, 27 January 1987.

Periodicals

Ardell, D.B. (1985). The history and future of wellness. Health Values, 9(6), 37-56.

Army strives for health promotion. (1986, November). HSC Mercury, p. 3.

Chen, M.S. (1982). Wellness in the workplace: A review of the literature. Health Values, 6(5), 14-18.

Consolvo, C.A., & Fox, S. (1981). So you want to start a wellness program. Texas Hospitals, August, 23-25.

Elias, W.S., & Murphy, R.J. (1986). The case for health promotion programs containing health care costs: A review of the literature. The American Journal of Occupational Therapy, 40 (11), 759-763.

Fielding, J.E. (1982). Appraising the health of health risk appraisal. American Journal of Public Health, 72(4), 337-339.

Fielding, J.E. (1982). Effectiveness of employee health improvement programs. Journal of Occupational Medicine, 24(11), 907-916.

Forouzesh, M.R., & Ratzker, L.E. (1985). Health promotion and wellness programs: An insight into the Fortune 500. Health Education, 15(7), 18-22.

Goetz, A.A., Duff, J.F., & Bernstein, J.E. (1980). Health risk appraisal: The estimation of risk. Public Health Reports, 95(2), 119-126.

Green, K. (1985). Health promotion: Its terminology, concepts, and modes of practice. Health Values, 9(3), 8-14.

Hargadine, H.K. (1985). Health promotion programs: Limited funds no stumbling block. Occupational Health & Safety, 54(3), 69-74.

Herzlinger, R.E., & Caulkins, D. (1986). How companies tackle health care costs: Part III. Harvard Business Review, 64(1), 70-80.

Hipp, E. (1984). Is the wellness movement dying? Health Values, 8(5), 10-12.

Jaffe, E. (1986). The role of occupational therapy in disease prevention and health promotion. The American Journal of Occupational Therapy, 40(11), 749-752.

Johnson, J.A. (1986). Wellness and occupational therapy. The American Journal of Occupational Therapy, 40(11), 753-758.

Kaplan, R.M. (1985). Behavioral epidemiology, health promotion, and health services. Medical Care, 23(5), 564-583.

Kirk, L.M. (1985). Southwestern Internal Medicine Conference: Health maintenance for adults. The American Journal of the Medical Sciences, 289(5), 215-220.

Kristein, M.M., Arnold, C.B., & Wynder, E.L. (1977). Health economics and preventive care. Science, 195(4277), 457-462.

Laughlin, J.A. (1982). A wellness approach to health in the workplace. Health Values, 6(2), 5-9.

Lave, J.R., & Lave, L.B. (1978). Cost-benefit concepts in health: Examination of some prevention efforts. Preventive Medicine, 7(3), 414-423.

Longe, M.E. (1981). Wellness: Coming of age in hospitals. Texas Hospitals, August, 18-20.

Longe, M.E. (1985). Hospital-based community health promotion: A status report. Family & Community Health, 8(1), 72-78.

Longe, M.E., & Ardell, D.B. (1981). Wellness programs attract new markets for hospitals. Hospitals, 55(22), 115-116, 119.

Manring, S.L. (1985). Evaluating corporate wellness and promotion programs: The cases of Johnson & Johnson Corporation and Metropolitan Life Insurance Company. Health Matrix, 3(2), 28-34.

McClary, C.L., Zahrt, L., Montgomery, J.H., Walker, H., & Petry, J.R. (1985). Wellness: The mode in the new paradigm. Health Values, 9(6), 8-12.

Moore, P.V., & Williamson, G.C. (1984). Health promotion. Evolution of a concept. Nursing Clinics of North America, 19(2), 195-206.

Polakoff, P.L. (1985). Worksite economical setting for preventive health care programs. Occupational Health and Safety, 54(6), 75-76.

Ross, C.K., Sherman, S.L., Berg, K.L., Radbill, L., Lee, E., Giloth, B., Jones, L., & Longe, M.E. (1985). Health promotion programs flourishing: Survey. Hospitals, 59(16), 128, 132, 134-135.

Tager, A.M., & Sondik, E.J. (1985). Economic evaluation of the benefits of cancer prevention and health promotion programs. Maryland Medical Journal, 34(1), 77-82.

Wagner, E.H., Beery, W.L., Schoenbach, V.J., & Graham, R.M. (1982). An assessment of health hazard/health risk appraisal. American Journal of Public Health, 72(4), 347-352.

Weinstein, M.C., & Stason, W.B. (1977). Foundations of cost-effectiveness analysis for health and medical practices. The New England Journal of Medicine, 296(13), 716-721.

White, V.K. (1986). Promoting health and wellness: A theme for the eighties. The American Journal of Occupational Therapy, 40(11), 743-748.